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No. 1613



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ARMED FORCES

NEW REGULATIONS ON RANK INSIGNIA

Ukase 678 -- Servicemen's Insignia

Moscow VEDOMOSTI VERKHOVNOGO SOVETA SOYUZA SOVETSKIKH SOTSIALISTICHESKIKH RESPUBLIK in Russian No 16 (2090), 22 Apr 81 pp 435-454

[Text] UKASE OF THE PRESIDIUM OF THE USSR SUPREME SOVIET 678. ON INSIGNIA OF USSR ARMED FORCES PERSONNEL

For the purpose of unification of USSR legislative enactments dealing with USSR Armed Forces personnel insignia, the Presidium of the USSR Supreme Soviet hereby decrees:

1. Shoulder boards as well as sleeve insignia of naval flag officers and line officers shall constitute rank insignia of USSR Armed Forces personnel.
2. Description and specimens (patterns) of insignia of military personnel shall be ratified: shoulder board; sleeve insignia of flag officers and naval line officers of the USSR Armed Forces.

Other military personnel insignia as well as regulations governing the wearing of insignia on uniforms by military personnel shall be established by the USSR Minister of Defense.

3. General officers, flag officers, officers, warrant officers, extended-service personnel, compulsory - service noncommissioned officers and enlisted personnel of agencies and troops (other than border troops) of the USSR State Security Committee shall wear the shoulder boards and sleeve insignia specified for Soviet Army and Navy personnel; piping and central stripes on officer shoulder boards, the field of the full dress shoulder boards of warrant officers and extended-service enlisted personnel, and the background field of the shoulder boards of initial term of service noncommissioned officers and enlisted personnel shall be cornflower blue in color; the shoulder boards of noncommissioned officers (other than petty officers and master sergeants) and compulsory-service enlisted personnel shall bear the gold letters ГБ.

Military construction personnel of military construction detachments (units) shall wear the shoulder boards specified for compulsory-service military personnel of Soviet Army military construction units.

4. USSR Legislative enactments as specified in the annex to this ukase shall no longer be in force.

Chairman of the Presidium of the USSR
Supreme Soviet L. Brezhnev
Secretary of the Presidium of the USSR
Supreme Soviet M. Georgadze

Moscow, Kremlin, 15 April 1981, No 4734-X.

Ratified by Ukase of the
Presidium of the USSR Supreme
Soviet, dated 15 April 1981,
No 4734-X

DESCRIPTION OF SHOULDER BOARDS OF MILITARY PERSONNEL AND SLEEVE INSIGNIA OF
FLAG OFFICERS AND NAVAL LINE OFFICERS OF THE USSR ARMED FORCES

I. General Provisions

Shoulder boards of military personnel and sleeve insignia of flag officers and naval line officers shall serve to indicate military rank as well as USSR Armed Forces branch and arm (service) affiliation of military personnel.

Full dress, everyday, and field service shoulder boards have been established. They may be sewn on or detachable, based on method of attachment to the uniform.

The following shall be borne on the field of shoulder boards, in conformity with granted military rank and branch, arm (service) affiliation of military personnel: a representation of the State Emblem of the Union of Soviet Socialist Republics, large and small five-pointed stars, central stripes, chevrons, emblems, and letters.

The dimensions of the representation of the State Emblem of the Union of Soviet Socialist Republics, large and small stars shall be determined by the diameter of the circumscribed circle.

Dimensions of shoulder boards: length -- 13.0-18.0 cm;
width --

a) for marshals, general officers and flag officers -- 6.5 cm (on the service shirt -- 5.5 cm);

b) for officers, warrant officers, noncommissioned officers, petty officers, enlisted personnel and cadets at military educational institutions -- 6.0 cm (on service shirts, when applicable -- 5.5 cm).

Compulsory-service personnel of the Navy and naval units of border troops, as well as cadets at naval educational institutions shall wear small shoulder boards on the sailor's flannel, white duck jumper, and fatigue shirt. The dimensions of these shoulder boards shall be as follows: length -- 5.0 cm, width -- 6.0 cm.

II. Shoulder Boards of Soviet Army, Internal Security and Border Troops (Other Than Naval Units) Personnel

1. Shoulder Boards of Marshals and General Officers

a) Full Dress Shoulder Boards

Shoulder Boards shall have a field of galloon of a special weave, fashioned of gold thread (of steel-colored silk on the overcoat), with red piping (light blue in the Air Force).

The shoulder boards of Marshals of the Soviet Union shall carry in the upper part a colored representation of the State Emblem of the Union of Soviet Socialist Republics, embroidered in metallic gold thread and silk, 47 mm in diameter, with a star 50 mm in diameter embroidered below the emblem, in gold thread and with red silk trim (Figure 1).

The following shall be embroidered with gold tinsel and thread on the shoulder boards of chief marshals and marshals of combat arms: in the upper part -- the combat arm emblem, and below the emblem -- a star 40 mm in diameter trimmed with red silk (light blue in the Air Force) (Figures 2 and 4); the star on the shoulder boards of chief marshals shall also be framed by two laurel branches of gold color (Figure 2).

An emblem shall be embroidered in gold tinsel and red silk on the upper part of the shoulder boards of army generals, and a star 40 mm in diameter shall be placed below the emblem, embroidered in gold thread and trimmed with red silk (Figure 3).

Stars 22 mm in diameter shall be embroidered on the shoulder boards of generals, in gold thread and trimmed with red silk (light blue in the Air Force). The number of stars shall conform to the military rank (Figures 5-7).

A combat arm (service) emblem shall be secured in the upper part of the shoulder boards of generals of artillery, justice, medical and veterinary services.

Shoulder boards on the service shirt are without piping. The shoulder board field is of the same fabric as the shirt, with a galloon pattern embroidered in gold tinsel. The representation of the State Emblem of the Union of Soviet Socialist Republics and the stars on the shoulder boards of Marshals of the Soviet Union shall be the same as on the dress tunic shoulder boards, but they shall be 40 mm in diameter. The stars and emblems on the shoulder boards of chief marshals of combat arms, army generals and marshals of combat arms shall be the same as on the dress tunic shoulder boards, but the stars shall be 35 mm in diameter. The small stars and emblems on the shoulder boards of general officers shall be the same as on the dress tunic shoulder boards, but the stars shall not be trimmed.

b) Everyday Shoulder Boards

Shoulder boards shall have a field of silk galloon of special weave, khaki in color (steel-blue on the overcoat), with red piping (light blue in the Air Force).

The representation of the State Emblem of the Union of Soviet Socialist Republics on the shoulder boards of Marshals of the Soviet Union, as well as stars and emblems on the shoulder boards of marshals and general officers shall be the same as on the full dress shoulder boards, but the small stars on the shoulder boards of general officers shall be without trim.

Shoulder boards on the uniform shirt shall be the same as on the shirt with the dress tunic, but the shoulder board field shall be of the same fabric as the everyday service shirt.

c) Field Service Shoulder Boards

Shoulder boards shall have a field of silk galloon of special weave, khaki color, with red piping (light blue in the Air Force).

The representation of the State Emblem of the Union of Soviet Socialist Republics on the shoulder boards of Marshals of the Soviet Union shall be the same as on the full dress uniform shoulder boards.

The stars on the shoulder boards of Marshals of the Soviet Union, chief marshals of combat arms, army generals and marshals of combat arms shall be khaki color and trimmed in red silk (light blue in the Air Force).

The laurel branches on the shoulder boards of chief marshals of combat arms shall be khaki color. Emblems on the shoulder boards shall be khaki color. The small stars in the emblems on the shoulder boards of chief marshals and marshals of engineer troops and signal troops as well as army generals shall be red.

The small stars on the shoulder boards of general officers shall be khaki color, without trim. Emblems (where applicable) shall be khaki color.

2. Shoulder Boards of Officers

a) Full Dress Shoulder Boards

Shoulder boards shall have a field of metallic gold galloon, with red piping and central stripes (light blue in the Air Force and Airborne Troops, medium blue in the Cavalry, speckled in the Internal Security Troops, and light green in the Border Troops).

On the full dress overcoat shoulder boards shall have a field of steel-blue silk galloon, without piping.

Field grade officer shoulder boards shall carry two central stripes and small metal stars, gold color, 20 mm in diameter. The shoulder boards of junior officer personnel shall carry a single central stripe and small metal stars, gold color, 13 mm

in diameter. The number of stars on the shoulder boards shall be in conformity with the military rank (Figures 8-14).

b) Everyday Shoulder Boards

Shoulder boards shall have a field of khaki-colored silk galloon, without piping, with central stripes.

Central stripes and small stars on shoulder boards shall be the same as on full dress shoulder boards.

Shoulder boards on the service shirt shall have a field of khaki-colored silk galloon, without piping, with central stripes and combat arm (service) emblems. Central stripes and stars on shoulder boards shall be the same as on full dress shoulder boards.

c) Field Service Shoulder Boards

Shoulder boards shall be with a field of khaki-color silk galloon without piping, with central stripes.

Central stripes on shoulder boards shall be the same as on full dress shoulder boards. Stars shall be of khaki color.

3. Shoulder Boards of Warrant Officers

a) Full Dress Shoulder Boards

Shoulder boards shall have a field of colored silk galloon, without piping.

The color of the shoulder board field shall be as follows, for the combat arms (services):

motorized rifle troops, higher combined-arms command and military political schools, higher rear services military schools, units, establishments and military educational institutions of legal service, medical, veterinary and finance services -- red;

Air Force and Airborne Troops -- light blue;

artillery, rocket, tank, engineer, chemical, railway, road construction, motor transport troops, signal troops, units of the military topographical service, military construction and pipeline units, and military railway transport service -- black;

Cavalry -- medium blue;

internal security troops -- speckled;

border troops -- light green.

Shoulder boards on the full dress overcoat shall have a field of steel-blue silk galloon.

Shoulder boards shall bear metal stars, of gold color, 13 mm in diameter. The number of stars on the shoulder boards shall be in conformity with the military rank (Figures 15-16).

b) Everyday Shoulder Boards

Shoulder boards shall have a field of khaki-color silk galloon (light green in the border troops), without piping.

Stars on the shoulder boards shall be the same as on the full dress shoulder boards.

Shoulder boards on the service shirt shall have a field of khaki-color silk galloon (light green in the border troops), without piping, with combat arm (service) emblems; stars on the shoulder boards shall be the same as on the full dress shoulder boards.

c) Field Service Shoulder Boards

Field service shoulder boards shall be the same as the everyday shoulder board. The stars on the shoulder boards shall be khaki color.

4. Shoulder Boards of Extended-Service Personnel, Compulsory-Service Noncommissioned Officers and Enlisted Personnel, and Military Educational Institution Cadets

a) Full Dress Shoulder Boards

The shoulder boards of extended-service military personnel shall have a field of colored silk galloon, while shoulder boards of compulsory-service military personnel shall have a field of colored broadcloth.

The color of the shoulder board field shall be as follows, for the combat arms (services):

motorized rifle troops, higher combined-arms command and military political schools, higher rear services military schools, units, establishments and military educational institutions of legal service, medical, veterinary and finance services -- red;

Air Force and Airborne Troops -- light blue;

artillery, rocket, tank, engineer, chemical, railway, road construction, motor transport troops, signal troops, units of the military topographical service, military construction and pipeline units, and military railway transport service -- black;

Cavalry -- medium blue;

internal security troops -- speckled;

border troops -- light green.

The shoulder boards of extended-service military personnel, compulsory-service non-commissioned officers and enlisted personnel shall be without piping. The shoulder boards of military educational institution cadets shall be with piping. The color of the piping shall be the same as that of the shoulder board field.

The field of the shoulder boards of military educational institution cadets shall be trimmed along the sides in gold-color galloon.

The shoulder boards of noncommissioned officers and privates 1st class shall bear gold-color stripes. The number and width of the stripes shall correspond to the military rank (Figures 17-21).

The shoulder boards of noncommissioned officers (except for master sergeants) and compulsory-service enlisted personnel shall bear the following gold letters: in the Soviet Army -- CA, in the Internal Security Troops -- BB, and in the Border Troops -- BB; the shoulder boards of military educational institution cadets (except for cadets with the rank of master sergeant) shall bear the letter K in gold (Figures 23-28).

The shoulder boards of extended-service personnel shall not bear letters.

b) Everyday Shoulder Boards

The shoulder boards of extended-service military personnel of the Soviet Army and Internal Security Troops shall have a field of khaki-color silk galloon. Stripes on the shoulder boards of noncommissioned officers shall be the following color: in the Soviet Army -- red; in the Internal Security Troops -- speckled.

The shoulder boards of extended-service personnel of the Border Troops shall be the same as the full dress shoulder boards.

On the service shirt the shoulder boards of extended-service personnel shall have a field of khaki-color silk galloon (light green in the border troops), with combat arm (service) emblems.

The shoulder boards of compulsory-service noncommissioned officers and enlisted personnel and military educational institution cadets shall be the same as the full dress shoulder boards, but on cotton clothing shall be of cotton cloth. Stripes on the shoulder boards of noncommissioned officers and privates 1st class shall be the same as on the full dress shoulder boards.

Shoulder boards on the service shirt of compulsory-service personnel standing duty in shirts without tunic shall be the same as on the service shirt of extended-service personnel.

c) Field Service Shoulder Boards of Extended Service Personnel, Compulsory-Service Noncommissioned Officers and Enlisted Personnel

Shoulder boards shall have a field of khaki-color cotton cloth, without piping or letters. Stripes on the shoulder boards of noncommissioned officers and privates 1st class shall be red (in the Internal Security Troops -- speckled).

Shoulder boards of extended-service personnel, compulsory-service noncommissioned officers and enlisted personnel of the Border Troops shall be the same as the full dress shoulder boards.

III. Shoulder Boards of Naval Personnel and Naval Units of the Border Troops

5. Shoulder boards of Flag Officers and General Officers

a) Full Dress Shoulder Boards

Shoulder boards shall have a field of galloon of a special weave, fashioned of gold thread (on the overcoat -- of black silk galloon), with piping.

Shoulder board piping shall be the following color: flag officers -- black (on the overcoat -- gold); general officers -- red (blue in the Air Force).

Shoulder boards of Fleet Admirals of the Soviet Union shall bear in the upper part a colored representation of the State Emblem of the Union of Soviet Socialist Republics, embroidered in gold tinsel and silk, 47 mm in diameter, and below the emblem, a star embroidered in gold thread, 50 mm in diameter, with bundles of black rays radiating from under it, and with a red pentagon in the center, on which an anchor shall be embroidered in black silk (Figure 29).

Shoulder boards of fleet admirals shall bear a star 40 mm in diameter, embroidered in gold thread, with bundles of black rays radiating from under it, and with a red pentagon in the center, on which an anchor shall be embroidered in black silk (Figure 30).

The shoulder boards of admirals, vice admirals and rear admirals shall bear stars 22 mm in diameter, embroidered with gold thread, with bundles of black rays radiating from under them, and with red pentagons in the center, on which anchors shall be embroidered in black silk. The number of stars shall correspond to the military rank (Figures 31-33).

The shoulder boards of general officers shall bear stars 22 mm in diameter, embroidered in gold thread and edge-trimmed in red silk (blue in the Air Force). The number of stars shall correspond to the military rank (Figures 34-36).

The shoulder boards of flag officers and general officers with engineer rank, as well as general officers of military justice, medical and veterinary services shall bear an emblem in the upper part indicating the combat arm (service).

Shoulder boards on the service shirt shall be without piping. The field of the shoulder boards shall be of the same cloth as the shirt, with a galloon pattern embroidered in gold tinsel. The representation of the State Emblem of the Union of Soviet Socialist Republics and the stars on the shoulder boards of Fleet Admirals of the Soviet Union shall be the same as on the full dress uniform jacket shoulder boards, but 40 mm in diameter. The stars on the shoulder boards of fleet admirals shall be the same as on the full dress uniform jacket shoulder boards, but 35 mm in diameter. The stars on the shoulder boards of admirals, vice admirals, rear admirals and general officers shall be the same as on the full dress uniform jacket

shoulder boards. Emblems (where applicable) shall indicate combat arm (service).

b) Everyday Shoulder Boards

Shoulder boards shall have a field of silk galloon of a special weave, black in color, with piping. Color of the shoulder board piping shall be as follows: flag officers -- gold; general officers -- red (in aviation -- blue).

Shoulder boards on the white uniform jacket shall have a field of silk galloon of a special weave, white in color, without piping.

The representation of the State Emblem of the Union of Soviet Socialist Republics on the shoulder boards of Fleet Admirals of the Soviet Union, as well as the stars and emblems on the shoulder boards of flag officers and general officers shall be the same as on the full dress shoulder boards, but the bundles of rays radiating from under the stars shall be gray on the shoulder boards of flag officers, and the stars on the shoulder boards of general officers shall be without edge trim.

Shoulder boards on the uniform shirt shall be the same as on the shirt with the full dress uniform jacket. The shoulder board field shall be of the same cloth as the everyday shirt.

6. Shoulder Boards of Officers

a) Full Dress Shoulder Boards

Shoulder boards shall have a field of metallic galloon, of gold color, with piping, and central stripes. Shoulder boards on the overcoat shall have a field of black silk galloon, without piping (with light green piping on the overcoat of officers of naval units of the Border Troops).

The color of the piping and central stripes on shoulder boards of Navy officers shall be as follows: line officers and officers with engineer ranks (except for aviation) -- black (gold central stripes on overcoat shoulder boards); aviation officers -- light blue; officers of shore units and naval infantry, officers of military justice, quartermaster, medical, veterinary and administrative services -- red.

The color of piping and central stripes on the shoulder boards of officers of Border Troops naval units shall be as follows: for line officers and officers with engineer ranks, the color of the piping shall be light green, and central stripes shall be black (gold central stripes on overcoat shoulder boards); the color of piping and central stripes shall be light green on the shoulder boards of other officers.

The shoulder boards of senior officer personnel shall bear two central stripes and small metal stars, gold color, 20 mm in diameter. The shoulder boards of junior officer personnel shall bear one central stripe and metal stars, gold color, 13 mm in diameter. The number of stars on the shoulder board shall correspond to the military rank (Figures 37-43).

A combat arm (service) emblem shall be affixed to the upper part of the shoulder board of officers with engineer military ranks, aviation, artillery, military justice, medical and veterinary service officers.

b) Everyday Shoulder Boards

Shoulder boards shall have a field of black silk galloon, without piping (in Border Troops naval units -- with light green piping), with central stripes. Shoulder boards on the white uniform jacket shall have a field of white silk galloon without piping (in naval units of Border Troops -- with light green piping).

The color of the central stripes on the shoulder boards of Navy officers shall be as follows: line officers and officers with engineer ranks -- gold; aviation officers -- light blue; officers of shore units and naval infantry, military justice, quartermaster, medical, veterinary and administrative service officers -- red.

The color of the central stripes on the shoulder boards of officers of Border Troops naval units shall be as follows: line officers and officers with engineer ranks -- gold; on the shoulder boards of other officers -- light green.

The stars shall be the same as on the full dress shoulder boards.

A combat arm (service) emblem shall be affixed to the upper part of the shoulder boards of officers with engineer ranks, aviation, artillery, military justice, medical and veterinary service officers.

Shoulder boards on the service shirt shall have a field of cream-colored silk galloon, without piping, with central stripes. The central stripes, stars and emblems on shoulder boards shall be the same as on the full dress shoulder boards.

c) Field Service Shoulder Boards of Naval Infantry Officers

Field service shoulder boards shall be the same as the everyday shoulder boards.

7. Shoulder Boards of Warrant Officers

a) Full Dress Shoulder Boards

Shoulder boards shall have a field of black silk galloon, with piping. The color of the shoulder board piping shall be as follows: warrant officers -- white; naval aviation warrant officers -- light blue; shore unit and naval infantry warrant officers -- red; warrant officers of Border Troops naval units -- light green.

The shoulder boards shall bear metal stars, gold color, 13 mm in diameter. The number of stars on the shoulder boards shall correspond to the military rank (Figures 44-45).

b) Everyday Shoulder Boards

Everyday shoulder boards shall be the same as the full dress shoulder boards.

Shoulder boards on the white uniform jacket shall have a white field and piping (in aviation the color of the piping shall be light blue, in shore units and naval infantry -- red, in Border Troops naval units -- light green).

Shoulder boards on the service shirt shall have a field of cream-colored silk galloon, without piping, with combat arm (service) emblems. The stars on the shoulder boards shall be the same as on the full dress shoulder boards.

c) Field Service Shoulder Boards of Naval Infantry Warrant Officers

Field service shoulder boards shall be the same as the full dress shoulder boards.

8. Shoulder Boards of Extended-Service Personnel, Shoulder Boards and Reduced Shoulder Boards of Compulsory-Service Petty Officers, Noncommissioned Officers, Enlisted Personnel, and Naval Educational Institution Cadets

a) Full Dress and Everyday Shoulder Boards and Reduced Shoulder Boards

Shoulder boards on the overcoat and uniform jacket of extended-service personnel shall have a field of black silk galloon (in aviation -- light blue), without piping (in Navy shore units -- with red piping; in Border Troops naval units -- with light green piping). Stripes on the shoulder boards shall be in conformity with military rank and shall be of gold color. Shoulder boards on the service shirt of extended-service personnel shall have a field of cream-colored silk galloon, without piping.

Shoulder boards and reduced shoulder boards on the overcoat and peajacket, as well as on the sailor's flannel of compulsory-service personnel respectively shall have a field of black broadcloth (in aviation -- light blue); reduced shoulder boards on the white duck jumper and work shirt shall have a field of cloth of the color of these shirts.

The shoulder boards and reduced shoulder boards of petty officers and enlisted seamen, as well as noncommissioned officers and enlisted personnel of naval aviation and naval infantry shall be without piping. The shoulder boards and reduced shoulder boards of naval educational institution cadets, noncommissioned officers and enlisted personnel of Naval shore units, petty officers and seamen of Border Troops naval units shall have piping. The color of the piping on the shoulder boards and reduced shoulder boards shall be as follows: naval educational institution cadets -- white (military medical faculties -- red); noncommissioned officers and enlisted personnel of Naval shore units -- red; petty officers and enlisted men of Border Troops naval units -- light green.

The shoulder boards and reduced shoulder boards of petty officers and noncommissioned officers, senior seamen and privates 1st class shall bear stripes of gold color. The number and width of stripes shall be in conformity with the military rank (Figures 46-50, 52-56).

Metal anchors of gold color shall be affixed to the shoulder boards and reduced shoulder boards of naval educational institution cadets (Figures 58-69).

The shoulder boards of petty officers (except for chief master petty officers), non-commissioned officers (except for master sergeants), and compulsory-service Naval enlisted personnel, as well as the reduced shoulder boards of enlisted personnel (except for senior seamen and privates 1st class) shall bear the letter Φ , gold color. The shoulder boards and reduced shoulder boards of petty officers and seamen of Border Troops naval units shall not bear letters.

The shoulder boards of extended-service personnel shall be without letters.

b) Field Service Shoulder Boards of Naval Infantry Noncommissioned Officers and Enlisted Personnel

Field service shoulder boards shall be the same as the everyday shoulder boards.

9. Shoulder Boards of Naval Personnel Who Wear the Uniform of Soviet Army Personnel

Shoulder boards shall be the same as the shoulder boards of the personnel of corresponding Soviet Army units. The shoulder boards of compulsory-service noncommissioned officers (except for master sergeants) and enlisted personnel shall carry the letter Φ , gold color.

IV. Sleeve Insignia of Flag Officers and Line Officers

Sleeve insignia shall consist of gold stripes sewn on the outer side of both sleeves of the uniform jacket and single-breasted uniform jacket, in conformity with military rank (Figures 70-81).

Stripes shall be sewn on the dress and full dress black uniform jackets from seam to seam, on the everyday black uniform jacket and jacket with high stand-up collar of flag officers and officers, as well as on the white uniform jacket of flag officers -- 8 cm in length.

In addition, five-pointed stars embroidered in gold thread shall be sewn above the stripes: 50 mm in diameter for flag officers, and 30 mm in diameter for officers. The stars shall be solid-embroidered for Fleet Admirals of the Soviet Union, fleet admirals and officers, while admirals, vice admirals and rear admirals shall wear a star outline with hammer and sickle in the center. The star for Fleet Admirals of the Soviet Union shall be framed by two laurel branches of gold color.

Secretary of the Presidium of the USSR
Supreme Soviet M. Georgadze.

Ratified by Ukase of the
Presidium of the USSR Supreme
Soviet, dated 15 April 1981,
No 4734-X

SPECIMENS (PATTERNS) OF SHOULDER BOARDS OF MILITARY PERSONNEL AND SLEEVE
INSIGNIA OF FLAG OFFICERS AND LINE NAVAL OFFICERS OF THE USSR
ARMED FORCES

Shoulder Boards of Marshals and General Officers of the Soviet Army, General Of-
ficers of the Internal Security and Border Troops (Except for Naval Units)



Figure 1. Marshal of
the Soviet Union



Figure 2. Chief Marshal
of a Combat Arm (Emblem
of Corresponding Combat
Arm)



Figure 3. Army
General

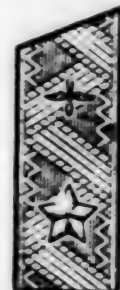


Figure 4. Marshal
of a Combat Arm
(Emblem of Cor-
responding Com-
bat Arm)



Figure 5. Colonel
General



Figure 6. Lieutenant
General



Figure 7. Major
General

Shoulder Boards of Officers of the Soviet Army, Internal Security and Border Troops
(Except for Naval Units)

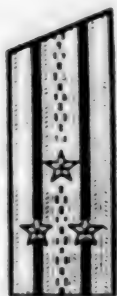


Figure 8. Colonel

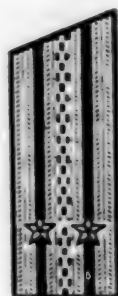


Figure 9. Lieutenant Colonel

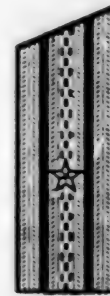


Figure 10. Major

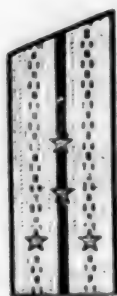


Figure 11. Captain

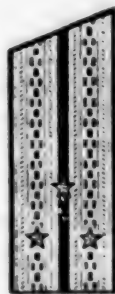


Figure 12. Senior Lieutenant

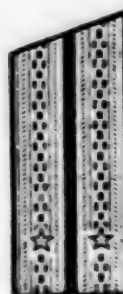


Figure 13. Lieutenant

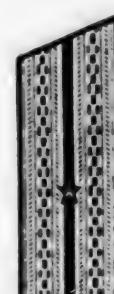


Figure 14. Junior Lieutenant

Shoulder Boards of Warrant Officers of the Soviet Army, Internal Security and Border Troops



Figure 15. Senior Warrant Officer



Figure 16. Warrant Officer

Shoulder Boards of Compulsory-Service Noncommissioned Officers and Enlisted Personnel of the Soviet Army



Figure 17. Master Sergeant



Figure 18. Senior Sergeant



Figure 19. Sergeant



Figure 20. Junior Sergeant



Figure 21. Private 1st Class



Figure 22. Private

Shoulder Boards of Military Educational Institution Cadets of the Soviet Army, Internal Security and Border Troops (Except for Naval Units)

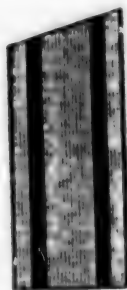


Figure 23. Master Sergeant



Figure 24. Senior Sergeant



Figure 25. Sergeant



Figure 26. Junior Sergeant



Figure 27. Private
1st Class



Figure 28. Cadet

Shoulder Boards of Flag Officers and General Officers of the Navy and Border Troops
Naval Units



Figure 29. Fleet Admiral
of the Soviet Union



Figure 30. Fleet
Admiral

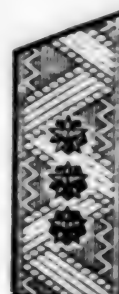


Figure 31. Admiral



Figure 32. Vice
Admiral



Figure 33. Rear
Admiral



Figure 34. Colonel
General



Figure 35. Lieutenant
General

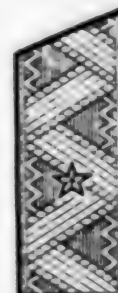


Figure 36. Major
General

Shoulder Boards of Officers of the Navy and Border Troops Naval Units



Figure 37. Captain
1st Rank (Colonel)



Figure 38. Captain
2d Rank (Lieutenant
Colonel)

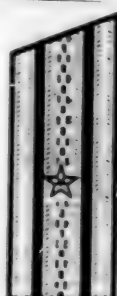


Figure 39. Captain
3d Rank (Major)

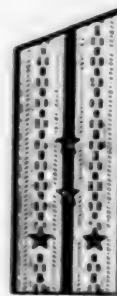


Figure 40. Captain-
Lieutenant (Captain)

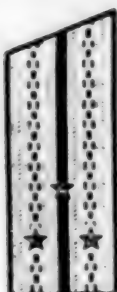


Figure 41. Senior
Lieutenant

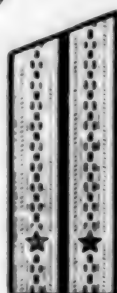


Figure 42. Lieutenant

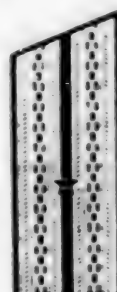


Figure 43. Junior
Lieutenant

Shoulder Boards of Navy Warrant Officers and Warrant Officers of Border Troops Naval Units



Figure 44. Senior Warrant Officer



Figure 45. Warrant Officer

Shoulder Boards and Reduced Shoulder Boards of Compulsory-Service Naval Personnel

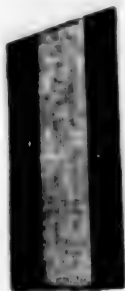


Figure 46. Master Chief Petty Officer (Master Sergeant)



Figure 47. Chief Petty Officer (Senior Sergeant)



Figure 48. Petty Officer 1st Class (Sergeant)



Figure 49. Petty Officer 2d Class (Junior Sergeant)



Figure 50. Senior Seaman (Private 1st Class)



Figure 51. Seaman (Private)



Figure 52. Master Chief Petty Officer (Master Sergeant)



Figure 53. Chief Petty Officer (Senior Sergeant)



Figure 54. Petty Officer 1st Class (Sergeant)



Figure 55. Petty Officer 2d Class (Junior Sergeant)



Figure 56. Senior Seaman (Private 1st Class)



Figure 57. Seaman (Private)

Shoulder Boards of Naval Educational Institution Cadets



Figure 58. Master Chief Petty Officer (Master Sergeant)



Figure 59. Chief Petty Officer (Senior Sergeant)



Figure 60. Petty Officer 1st Class (Sergeant)



Figure 61. Petty Officer 2d Class (Junior Sergeant)



Figure 62. Senior Cadet



Figure 63. Cadet

Reduced Shoulder Boards of Naval Educational Institution Cadets



Figure 64. Master Chief Petty Officer (Master Sergeant)

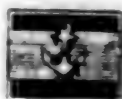


Figure 65. Chief Petty Officer (Senior Sergeant)

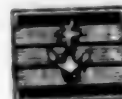


Figure 66. Petty Officer 1st Class (Sergeant)



Figure 67. Petty Officer 2d Class (Junior Sergeant)

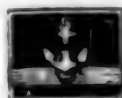


Figure 68. Senior Cadet



Figure 69. Cadet



Figure 70. Fleet Admiral of the Soviet Union

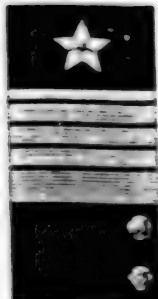


Figure 71. Fleet Admiral



Figure 72. Admiral



Figure 73. Vice Admiral



Figure 73. Rear Admiral



Figure 74. Captain 1st Rank

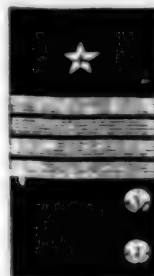


Figure 76. Captain 2d Rank



Figure 77. Captain 3d Rank



Figure 78. Captain-Lieutenant



Figure 79. Senior Lieutenant



Figure 80. Lieutenant



Figure 81. Junior Lieutenant

Secretary of the Presidium of the USSR Supreme Soviet M. Georgadze.

Annex to the Ukase of the
Presidium of the USSR Supreme
Soviet of 15 April 1981,
No 4734-X

LIST OF USSR LEGISLATIVE ENACTMENTS NO LONGER IN EFFECT, FULLY OR
PARTIALLY

1. Ukase of the Presidium of the USSR Supreme Soviet of 6 January 1943, "On Adoption of New Insignia for Red Army Personnel" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 2, 1943).
2. Ukase of the Presidium of the USSR Supreme Soviet of 1 February 1943, "On Insignia Changes -- Shoulder Boards for Marshals of the Soviet Union, and on Adoption of Insignia -- Shoulder Boards for Marshals of Aviation, Artillery and Armored Troops" ("Sbornik zakonov SSSR i ukazov Prezidiuma Verkhovnogo Soveta SSSR 1938-1975 gg" [Collection of Laws of the USSR and Ukases of the Presidium of the USSR Supreme Soviet, 1938-1975], Vol 2, page 372).
3. Ukase of the Presidium of the USSR Supreme Soviet of 15 February 1943, "On Adoption of New Insignia for USSR Naval Personnel" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 7, 1943).
4. Ukase of the Presidium of the USSR Supreme Soviet of 26 October 1943, "On Adoption of Shoulder Boards for Chief Marshals of the Combat Arms and for Marshals of Signal Troops and Engineer Troops" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 46, 1943).
5. Ukase of the Presidium of the USSR Supreme Soviet of 25 May 1945, "On Insignia Change -- Shoulder Boards for Fleet Admirals" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 31, 1945).
6. Ukase of the Presidium of the USSR Supreme Soviet of 14 August 1956, "On Adoption of New-Type Shoulder Boards for Marshals of the Soviet Union, Chief Marshals and Marshals of Artillery, Aviation, Armored Troops, Signal Troops, and Engineer Troops" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 19, 1956, Item 408).
7. Ukase of the Presidium of the USSR Supreme Soviet of 26 March 1958, "On Changes in the Description of Shoulder Boards for Personnel of the Soviet Army, Navy, Troops and Agencies of the State Security Committee of the USSR Council of Ministers" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 8, 1958, Item 178).
8. Ukase of the Presidium of the USSR Supreme Soviet of 28 April 1962, "On Establishment of the Military Rank 'Fleet Admiral'" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 18, 1962, item 199).
9. Ukase of the Presidium of the USSR Supreme Soviet of 24 October 1963, "On Changes in Description of Shoulder Boards of Soviet Army and Navy Personnel" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 44, 1963, Item 457).

10. Ukase of the Presidium of the USSR Supreme Soviet of 26 June 1969, "On Changes in the Description of Insignia for Soviet Army and Navy Personnel" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 27, 1969, Item 232).

11. Article 4 of the Ukase of the Presidium of the USSR Supreme Soviet of 18 November 1971, "On Warrant Officers of the USSR Armed Forces" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 47, 1971, Item 453).

12. Decree of the Presidium of the USSR Supreme Soviet of 17 December 1974, "Description of Shoulder Boards of Army Generals" (PROTOKOL ZASEDANIYA PREZIDIUMA VERKHOVNOGO SOVETA SSSR, No 6, 1974, Paragraph 70).

13. Ukase of the Presidium of the USSR Supreme Soviet of 10 March 1980, "On Changes in the Description of Shoulder Boards of Soviet Army and Navy Personnel" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 12, 1980, Item 213).

14. Final paragraph of the first section of Article 2 of the Ukase of the Presidium of the USSR Supreme Soviet of 24 December 1980, "On Adoption of Certain Changes in and Additions to USSR Legislative Enactments of Warrant Officers of the USSR Armed Forces" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 52, 1980, Item 1133).

Secretary of the Presidium of the
USSR Supreme Soviet M. Georgadze.

Ukase 679—Marshals, Admirals Insignia

Moscow VEDOMOSTI VERKHOVNOGO SOVETA SOYUZA SOVETSKIKH SOTSIALISTICHESKIKH RESPUBLIK in Russian No 16 (2090), 22 Apr 81 pp 454-458

[Text] UKASE OF THE PRESIDIUUM OF THE USSR SUPREME SOVIET 679. ON THE MARSHAL IN-SIGNIA OF DISTINCTION "MARSHAL'S STAR" OF A MARSHAL OF THE SOVIET UNION AND FLEET ADMIRAL OF THE SOVIET UNION, "MARSHAL'S STAR" OF A MARSHAL OF A COMBAT ARM, ARMY GENERAL, AND FLEET ADMIRAL

For the purpose of unifying USSR legislative enactments on the marshal's insignia of distinction "Marshal's Star," the Presidium of the USSR Supreme Soviet hereby decrees:

1. The "Marshal's Star" of the Marshal of the Soviet Union and Fleet Admiral of the Soviet Union, presented by the Presidium of the USSR Supreme Soviet, shall be the marshal's insignia of distinction of the Marshal of the Soviet Union and Fleet Admiral of the Soviet Union.

The "Marshal's Star" of the marshal of a combat arm, army general and fleet admiral, presented by the Presidium of the USSR Supreme Soviet, shall be a marshal's insignia of distinction of a marshal of artillery, marshal of aviation, marshal of armored troops, marshal of engineer troops, marshal of signal troops, army general, and fleet admiral.

2. Persons who have been promoted to the military rank of Marshal of the Soviet Union, Fleet Admiral of the Soviet Union, Marshal of Artillery, Marshal of

Aviation, Marshal of Armored Troops, Marshal of Engineer Troops, Marshal of Signal Troops, Army General, and Fleet Admiral shall, in addition to the "Marshal's Star," be presented a Certificate of the Presidium of the USSR Supreme Soviet.

3. The description and designs (patterns) of the marshal's insignia of distinction "Marshal's Star" shall be ratified.

4. Those USSR Legislative enactments listed in the annex shall no longer be in effect.

Chairman of the Presidium of the USSR
Supreme Soviet A. Brezhnev
Secretary of the Presidium of the USSR
Supreme Soviet M. Georgadze

Moscow, Kremlin, 15 April 1981, No 4735-X

Ratified by Ukase of the
Presidium of the USSR Supreme
Soviet of 15 April 1981,
No 4735-X

DESCRIPTION OF THE MARSHAL'S INSIGNIA OF DISTINCTION "MARSHAL'S STAR" OF A
MARSHAL OF THE SOVIET UNION AND FLEET ADMIRAL OF THE SOVIET UNION

The marshal's insignia of distinction "Marshal's Star" of a Marshal of the Soviet Union and Admiral of the Soviet Union shall be a five-pointed gold star with smooth, two-facet points on the obverse. The center of the insignia shall bear a five-pointed star, of an alloy of precious metals, studded with diamonds: a 2.62 carat diamond in the center, and in the points -- 25 diamonds totaling 1.25 carats.

There shall be five diamonds totaling 3.06 carats positioned between the facets of the outer star points.

The diameter of the circumscribed circle of the gold star shall be 44.5 mm, and that of the precious metals alloy star shall be 23 mm..

The sectional thickness of the "Marshal's Star" shall be 8 mm.

The reverse side of the insignia shall be flat, with plaiting mounts carrying the diamonds of the precious metals alloy star and the diamonds mounted between the facets of the gold star points.

The "Marshal's Star" shall bear a triangular eye in the topmost star point, to which shall be fastened a semioval loop 14 mm in length, through which a red moiré ribbon 35 mm in width shall be passed.

The total weight of the marshal's insignia of distinction shall be 36.8 grams.

Secretary of the Presidium of the USSR Supreme
Soviet M. Georgadze.

Ratified by Ukase of the
Presidium of the USSR Supreme
Soviet of 15 April 1981,
No 4735-X

SPECIMEN (PATTERN) OF THE MARSHAL'S INSIGNIA OF DISTINCTION "MARSHAL'S STAR" OF
A MARSHAL OF THE SOVIET UNION AND FLEET ADMIRAL OF THE SOVIET UNION



Secretary of the Presidium of
the USSR Supreme Soviet
M. Georgadze.

Ratified by Ukase of the
Presidium of the USSR Supreme
Soviet of 15 April 1981,
No 4735-X

DESCRIPTION OF THE MARSHAL'S INSIGNIA OF DISTINCTION "MARSHAL'S STAR" OF A
MARSHAL OF A COMBAT ARM, ARMY GENERAL, AND FLEET ADMIRAL

The marshal's insignia of distinction "Marshal's Star" of a marshal of a combat arm, army general, and fleet admiral shall be a five-pointed gold star with smooth dihedral points on the obverse. The center of the insignia shall bear a five-pointed star of an alloy of precious metals, with diamonds: a 2.04 carat diamond in the center, and 25 diamonds in the points, totaling 0.91 carat.

The diameter of the described circle of the gold star shall be 42 mm, while that of the star of the alloy of precious metals shall be 21 mm.

The thickness of the "Marshal's Star" shall be 8 mm.

The reverse of the insignia shall be flat, with plaiting mounts carrying the diamonds of the star of the precious metals alloy.

The "Marshal's Star" shall bear a triangular eye in the topmost star point, to which shall be fastened a semioval loop 14 mm in length, through which a red moiré ribbon 35 mm in width shall be passed.

The ribbon of the marshal's insignia of distinction "Marshal's Star" of a marshal of artillery shall be gold.

The ribbon of the marshal's insignia of distinction "Marshal's Star" of a marshal of aviation shall be light blue.

The ribbon of the marshal's insignia of distinction "Marshal's Star" of a marshal of armored troops shall be claret.

The ribbon of the marshal's insignia of distinction "Marshal's Star" of a marshal of engineer troops shall be crimson.

The ribbon of the marshal's insignia of distinction "Marshal's Star" of a marshal of signal troops shall be dark blue.

The ribbon of the marshal's insignia of distinction "Marshal's Star" of an army general shall be red.

The ribbon of the marshal's insignia of distinction "Marshal's Star" of a fleet admiral shall be turquoise.

Total weight of the marshal's insignia of distinction shall be 35.1 grams.

Secretary of the Presidium of the USSR
Supreme Soviet M. Georgadze.

Ratified by Ukase of the
Presidium of the USSR Supreme
Soviet of 15 April 1981,
No 4735-X

SPECIMEN (PATTERN) OF THE MARSHAL'S INSIGNIA OF DISTINCTION "MARSHAL'S STAR"
OF A MARSHAL OF A COMBAT ARM, ARMY GENERAL, AND
FLEET ADMIRAL



Secretary of the Presidium of the
USSR Supreme Soviet M. Georgadze.

Annex to Ukase of the
Presidium of the USSR Supreme
Soviet of 15 April 1981,
No 4735-X

LIST OF USSR LEGISLATIVE ENACTMENTS NO LONGER IN EFFECT

1. Ukase of the Presidium of the USSR Supreme Soviet of 2 September 1940, "On Establishment of the Marshal's Insignia of Distinction 'Marshal's Star'" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 30, 1940).
2. Ukase of the Presidium of the USSR Supreme Soviet of 27 February 1943, "On Establishment of the Marshal's Insignia of Distinction 'Marshal's Star' of a Marshal of Artillery, Marshal of Aviation, and Marshal of Armored Troops" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 10, 1943).
3. Ukase of the Presidium of the USSR Supreme Soviet of 20 March 1944, "On the Marshal's Insignia of Distinction 'Marshal's Star' of a Marshal of Engineer Troops and Marshal of Signal Troops" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 18, 1944).
4. Ukase of the Presidium of the USSR Supreme Soviet of 3 March 1955, "On the Military Rank of Fleet Admiral" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 4, 1955, Item 96).
5. Ukase of the Presidium of the USSR Supreme Soviet of 5 June 1962, "On Fleet Admiral Insignia of Distinction" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 23, 1962, Item 236).
6. Ukase of the Presidium of the USSR Supreme Soviet of 1 November 1974, "On Change in Insignia of Distinction for Army Generals" (VEDOMOSTI VERKHOVNOGO SOVETA SSSR, No 45, 1974, Item 745).

Secretary of the Presidium of the
USSR Supreme Soviet M. Georgadze.

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CSO: 1801/269

AIR FORCES

HELICOPTER SQUADRON: CLOSE SUPPORT TRAINING

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, 1981 p 4

[Article by Military Pilot 1st Class, Maj V. Rokhlov, deputy squadron commander for political affairs: "From Different Directions"]

[Text] It was growing light. The first rays of the rising sun turned the sparse clouds floating over the mountains golden. The peaks of the range literally swam in the morning whitish haze. Here it was quiet but over there, beyond the cliffs, "battle" was already underway. The motorized rifle troops without a halt had attacked the "enemy," and having seized the pass had cut off its route of retreat. Having regrouped, the subunits of the opposing side attempted to break out of the trap but were thrown back in encountering heavy firing. However it was not so simple to destroy the "enemy" cut off in the mountain defile. In order to complete what the motorized rifle troops had started, the commander called in fire support helicopters.

Taking off was a two-helicopter element led by Military Pilot 1st Class, Capt N. Bulavin. In approaching the mountain walls the helicopters began to shake. The leader had anticipated this and changed to a new heading. Such a maneuver made it possible to cross the pass at the best angle and attack straight in.

Bulavin's view swept across the designated line of his own troops and stopped at the "enemy" positions. Concealed behind boulders from the motorized rifle troops the firing positions could be easily spotted from above.

"We are attacking!" came the command from the leader.

The helicopters were on the combat course. The machine gun nests could be clearly seen in the sight. They were coming closer and closer. Now was the time! The bombs fell on the target. A sharp turn to the left with a gain in altitude and Bulavin could see how his wingman was doing. His bombs covered the target nearby.

A new pass. A series of missiles one after the other wiped the remaining firing points from the face of the earth. The motorized rifle troops went over to the attack. The two helicopters supported them with machine gun fire, suppressing the centers of resistance which appeared. Soon battle was over and the helicopters headed back to the airfield.

"Thanks, aces," came the voice of the motorized rifle commander over the air.

"Happy follow-up!" replied Bulavin.

A short time later the helicopters landed at a dirt airfield. The socialist obligations assumed by the crews for the flight shift had been carried out excellently.

A party meeting had been held in our squadron before the start of the exercise. The communists critically assessed the achievements, they disclosed reserves and made specific proposals for quickly carrying them out. Particular attention was given to training the crews for mountain flights.

The party bureau organized a talk for the young pilots by the flight leader, Military Pilot 1st Class, Maj A. Nyunin. This decisive and tactically skilled officer had repeatedly carried out difficult missions under mountain conditions in a tactical flight exercise.

Having drawn diagrams and graphs on the classroom blackboard, Maj Nyunin told the comrades in detail about the best flight profiles over mountain terrain and about the particular features of orientation and tactical procedures in attacking the target. In particular, he analyzed in detail a sortie of his flight in recently conducted exercises for destroying the "enemy" which had concentrated in gorges.

...The troop accumulations could be approached only from two sides as cliffs rose to the right and left. Having assessed the situation, the commander realized that the attack by the flight might not achieve the desired success as after the attack they would have to travel a long ways along the gorge to turn. During this time the "enemy" could take countermeasures.

But what if they attacked from two directions? The rocky walls formed an enormous corridor the sides of which could not so easily be "jumped over." But not far from the strongpoint of the opposing side the mountains descended.... Hence, the first two helicopters would have to wait until the wingmen reached the rear.

They figured the time and established the boundaries of the waiting area. The "enemy" should not hear either the sound of the engine nor voices over the air waves. These measures guaranteed surprise.

At the designated time the helicopters were in the air. At the calculated line the flight split with the two wingmen, in skirting the cliffs, moving off to the right while the leaders made a turn. The flight clocks counted off the seconds. But then time was up. The helicopters dove into the gorge. The target appeared a minute later. Like an avalanche, the hail of missiles descended on it. As soon as the two leaders began to climb the wingman pair coming toward it began the attack. The plan succeeded. Having made a turn a safe distance away, the helicopters attacked again. Smoke and fire engulfed the target's position. Having combed the rocks with machine gun tracer bullets, the flight returned safely home.

...In making notes in their workbooks, the squadron pilots carefully listened to Maj Nyunin. Then came questions and individual aspects of the flight were analyzed. In the collective discussion new proposals arose which from the viewpoint of tactics were of definite interest. The measure organized by the squadron communists brought great benefit and now such talks are held constantly. The new maneuvers calculated in detail on the ground and tested out in the air have been adopted by all aviators.

An important role is played by correctly organized work of the party bureau in preparing for the mountain flights. In our subunit there were also potential flight accidents. The communists did not limit themselves to just stating the facts and punishing the guilty parties. At a session of the party bureau they discussed the reasons for what had occurred and ascertained the circumstances under which deviations might happen. They then planned to work with the crew members. And the results were not long in coming.

The experience of mountain flights shows that the success in carrying out a mission is ensured by a high psychological mood of the crews, by careful preparations on the ground and by precise calculations. The pilot should take off with a clearly formulated flight plan and with a sense of complete confidence in the support and flawless actions of his comrades in the formation.

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CSO: 9144/0942

AIR FORCES

HELICOPTER SQUADRON: TRANSPORT MISSIONS IN BAD WEATHER

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, 1981 p 5

[Article by Lt Col A. Guk: "Seconds Count"]

[Text] The cold wind seemingly passed right through you. Fine needles of ice pricked your face. But at the airfield intense work was underway as the helicopter troops were preparing for flights.

"We have been waiting a long time for such weather," explained the squadron commander. "And now we have a real minimum."

He glanced again at the sky and headed toward the helicopter parked on the pad. The crew of Capt V. Pavlenko was fully prepared for the flight under instrument flying conditions and this would largely determine the further advancement through the flight training program and the carrying out of the assumed socialist obligations. According to the mission the pilots were to deliver cargo to the tank troops. Only the tactical situation was hypothetical and all the rest was real.

The command to take off was received. Pavlenko out of habit glanced at the instrument panel in the cockpit and having made certain that everything was in order began to put on power. The helicopter smoothly lifted off, for a short time it hovered over the ground and then began to climb.

Other crews were also carrying out an analogous mission. The communist, Capt Pavlenko, an experienced military pilot with a good deal of flying time under instrument flying conditions during the day and at night, confidently piloted the helicopter. His movements were precisely planned. The helicopter moved smoothly along the route. Speed, altitude and heading were precisely maintained. In the course of the exercises the crew had repeatedly delivered military equipment, fuel and ammunition to the tank troops, the artillery troops, the missile and motorized rifle troops. And with good reason this collective had repeatedly been sighted as an example for others. In summing up the results of the competition, the squadron commander pointed out that Capt Pavlenko's crew had emerged among the right flankers. During the current training year, the fliers had assumed high socialist obligations and they had resolved to reaffirm the title of an outstanding crew, to raise their class rating and to carry out all flight missions only with high quality.

The first days of training showed that they were keeping their word. For example, the Komsomol member, Lt I. Denisov, a recent school graduate, had already attained noticeable successes in combat training. And this flight under instrument flying conditions to a distant point on the range was yet another step on the path toward the heights of flight mastery.

The flight technician, the communist, Sr Lt Tech Serv A. Pan'kov also had high indicators in combat training. He is a first-class aviation specialist and an outstanding man in military and political training. The helicopter which he services operates without any trouble and is always ready for take-off. The specialist spares no time and energy for preparing its systems, units and equipment on the ground.

During the flight the officer carefully monitored the work of the equipment. And although Sr Lt Tech Serv A. Pan'kov is confident of the operating of all the helicopter equipment, his vigilance in the air is a sure guarantee for flight safety.

The airfield had been left far behind. The helicopter was flying precisely along the set route. The crew commander, Capt Pavlenko, the pilot-navigator, Lt Denisov and the flight technician, Sr Lt Tech Serv Pan'kov, carried on with their work calmly. I involuntarily recalled the words of the deputy squadron commander for political affairs: "Capt Pavlenko has a good crew: strong, close-knit and industrious."

"We are approaching the landing area," reported the pilot-navigator.

The helicopter had to be unloaded precisely at the designated time. This was an indicator for the quality of navigation and crew skill.

"Time!" Capt Pavlenko said fixing the position and smiled approvingly at his subordinates: "Good fellows!"

In comparing the actions of all the crews involved in the flights, the squadron commander at the end of the flight shift summed up the results:

"Again the crew of Capt Pavlenko had the best indicators. Excellent grades for all the elements!"

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AIR FORCES

FIGHTER-BOMBER TRAINING PROCEDURES DESCRIBED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, 1981 p 6

[Article by Lt Col A. Finayev: "'Target Coordinates...'"]

[Text] According to the ground reconnaissance data, the "enemy" column was on the move. In order to clarify the basic direction of its movement and the composition of forces, air reconnaissance had to be carried out before the basic forces reached the dispersion area. This mission was assigned to Military Pilot 1st Class, Capt I. Kolesnikov.

The pilot began to prepare carefully for the flight. The mountain tayga terrain made it possible to move secretly in many directions. Kolesnikov did not doubt that the equipment had been carefully camouflaged. Moreover, the commander anticipated that the column would be covered by strong air defense weapons. And interceptors could also appear. For this reason the captain restudied the particular features of detecting troops on the move and the give-away features of military equipment. On a large-scale map he designated the probable route of the "enemy's" move, he analyzed the nature of the terrain and applied a coordinate grid for precisely determining the location of the targets. The mission was complicated by the absence of characteristic markers in the search area and for this reason the pilot devoted particular attention to a maximum use of radio electronic equipment during the flight.

At the parking area Kolesnikov was met by Sr Lt Tech Serv R. Babenko.

"Comrade captain, the aircraft is ready for the flight," he reported succinctly.

Capt Kolesnikov has said that the technical crew has not failed him. The technician and mechanic are first-rate specialists. In truth, at the beginning of service Otar Gigolashvili worked timidly on the fighter bomber. The impression was gained that he was a bit afraid of the complex units and systems. One of the first to note this was R. Babenko. Without considering the time spent, he instilled confidence in his assistant, he taught him to handle the equipment calmly and helped him broaden and deepen his knowledge. Soon the soldier shaped up. Now Sgt O. Gigolashvili is considered the best junior air specialist in the unit.

One time after flying, Capt Kolesnikov assembled his subordinates.

"What do you think, can we fight for the title of an outstanding crew?" he asked.

Having discussed all the details, the aviators concluded that the task was within their reach. They outlined a specific plan and clarified its basic points. Subsequently they worked at full force, critically assessing the successes and analyzing the shortcomings in detail. The aviators kept their word and the socialist obligations assumed in honor of the 26th Party Congress were carried out. But the crew members did not stop with this.

"This doesn't make sense," the commander commented once. "The crew is outstanding but the aircraft is not."

Without another word the subordinates set to work. They improved the parking area and carefully readied the fighter bomber for each flight. After a certain time it was submitted to the commission for awarding the title "Outstanding Unit Aircraft." Soon the honorary insignia appeared on its side.

...The fighter bomber was taxiing from the parking area. The technician and mechanic put their hands to their headgear which meant "All in order, commander. A good flight!" A short time later and the aircraft was airborne.

Turning onto the designated heading, Capt Kolesnikov assumed the set altitude. It was essential to reach the reconnaissance area undetected; otherwise he could come under fire from antiaircraft missiles or interceptor fighters.

Below were hills alternating with the dense green tayga. Ahead of the supposed detection line of the "enemy" radar the fighter bomber literally dived under the view of the enemy radars. There was the bald hill where he would turn left and then along the ravine to the search area.

The aircraft hugged the ground. Crossing a small range, the pilot began to climb, simultaneously scanning the terrain. Now the "enemy" radars would spot him. He executed an energetic maneuver to break off interception. In putting the aircraft into roll after roll, Kolesnikov detected dark prominences on the side of a forest-covered hill. Without reducing acceleration, he turned the aircraft and flew over this area. There they were: nestled at the edge of the forest were tanks and a little farther off heavy trucks....

Everything was clear. A quick glance gave the column's coordinates on the map and over the airways came the coded signals of the "enemy" location.

In executing an antiaircraft maneuver, Kolesnikov spotted two points approaching the search area. These were interceptors on their way. "You are too late!" thought the pilot contentedly and switched on the afterburner.

Escaping from his pursuers, Capt Kolesnikov headed back to his airfield. The first group was leaving to attack the "enemy" discovered by him. According to the reconnaissance data, the fighter bombers made a powerful missile and bomb attack and returned to the point without losses.

"How was the equipment, comrade commander?" asked Roman Babenko when Kolesnikov, having shut down the engine, opened the cockpit canopy.

"It worked excellently, thanks!"

Coming down the ladder, the officer shook the hands of the technician and mechanic.

The weapons crew was already rolling the carts with bombs and missiles up to the fighter bomber. In a little time the combat aircraft would be back in the skies. The commander would affirm the result of the intense work by the crew with an accurate strike against the "enemy."

The crew of the master of combat employment, Capt I. Kolesnikov, remains the leader in the socialist competition. But life does not stand still. The small, close-knit collective is confronted with new, more complicated tasks. The aviators are constantly increasing their successes and raising the results of combat training.

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AIR FORCES

FUELS AND LUBRICANTS: SUPPLY ECONOMY MEASURES

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, 1981 p 7

[Article by Maj G. Raylyan, deputy commander for political affairs of the separate airfield technical support battalion: "Thrifty Means in a Party Manner"]

[Text] In the report at the 26th CPSU Congress, in speaking about the urgent national economic problems of the 1980's and the 11th Five-Year Plan, Comrade L. I. Brezhnev emphasized that "...the core of economic policy is a concern which is seemingly simple and very mundane, namely an economic attitude toward the public weal and the ability to use fully and efficiently all that we have. The initiative of the labor collectives and mass party work must be aimed at this."

The command and the party organization thoroughly analyzed the results of the financial and economic activities in the unit over the previous period and outlined new specific measures to further strengthen the economy drive and to improve the indoctrination of personnel in a spirit of thriftiness.

After the unit commander, Lt Col V. Kozyrskiy, set out the task for the subunit commanders and the service chiefs, a meeting was held for the party and economic aktiv and a general meeting of the servicemen and employees of the Soviet Army. The meeting was held in a professional-like manner. The speakers emphasized that we need not only slogans and appeals but also concrete deeds and initiative by the men as we do have internal reserves and rather large ones.

The aviators of our battalion undertook a broad movement to save fuel and lubricants [FLM] and electric power and announced a decisive struggle against waste and mismanagement. The commanders and the party and Komsomol activists began extensive indoctrination and established a clear pace in the socialist competition between the subunits. In exercises and talks, in summing up the results of the socialist competition and in setting the tasks for the day and the flight shift, they explained to the aviators the importance of saving each kopeck, each gram of fuel and each minute of working time. The unit command took the decision to draw the attention of the personnel of the various specialties to the necessity of savings and thriftiness in all the exercises.

As a result of the work done, all the aviators in the unit gained a feeling of personal responsibility for saving socialist property.

Of course it is impossible to achieve success in this important and major question without the broad involvement of the personnel. Upon the initiative of the party activists the units and subunits began holding technical conferences, contests, competitions and other measures helping to increase the activeness of the aviators. The Komsomol members of the subunit commanded by Capt R. Valnullin were the pacesetters of the socialist competition in the unit for economy and thriftiness. Here a majority of the aviators are outstanding men in military and political training and each soldier is a class specialist. The collective rightly carries the title of advanced, it has repeatedly come out with useful initiatives and reinforces its word with deeds. The subunit personnel has saved many hundreds of liters of gasoline and diesel fuel and this made it possible to operate for a certain time using the unused limits. The unit party bureau and Komsomol committee studied the experience of the leaders and disseminated it.

What is the secret of success of the pacesetters? Primarily in correctly organizing the socialist competition and in fully utilizing its possibilities. And here an important role was also played by the skill and technical training of the personnel. For example, Sgt I. Nazarenko during the year saved 425 liters of gasoline. Having great experience he skillfully drives a vehicle and promptly and effectively carries out technical servicing. In fueling Nazarenko does not overflow the tank. The truck assigned to him is always in working order and the storage batteries and systems of the vehicle are used significantly longer than the established norms.

Sgt Nazarenko proposed holding a competition. The drivers should travel as great a distance as possible with a limited fuel supply. The command and the Komsomol committee supported the man's proposal. The competition attracted the attention of many and it was carried out in a lively and interesting manner, and most importantly, instructively. The subunit has many such activists as Sgt Nazarenko.

The personnel of the FLM service headed by Capt N. Mishchenko has acquired positive experience in the rational consumption of fuel and in preventing instances of its unjustified loss. The available fuel and oils at the fueling station and FLM dump in the unit always conform to the accounting data and the documents are kept in an exemplary state. Communist Mishchenko constantly supervises the consumption of FLM. Due to this over the previous period the service has saved more than 200 rubles worth of fuel while the total savings from fuel economy was around 17,000 rubles.

A joint session of the unit party bureau and the people's control group approved a decision to provide help to the command in strengthening control over the receipt and distribution of fuel. The communists assumed a very responsible attitude toward this question. In hearing a report by the subunit commander Officer A. Lyubimov at the party bureau, they criticize him sharply for omissions in the accounting for FLM.

The chairman of the people's control group, Capt V. Zvorygin, inspected the work of the dump chief WO ["praporshchik"] I. Kovalenko. It was discovered that the tanks at the fueling station had not been promptly cleaned and this had led to mechanical impurities in the fuel. WO Kovalenko was held responsible for the shortcomings. They were quickly eliminated.

The party bureau also listened to the communist I. Kravchenko who was responsible for organizing military-technical propaganda. The communists pointed out shortcomings in the organization of the work done by the circle to raise technical knowledge. Subsequently its activities were significantly improved.

In the unit a great deal has been done to improve the professional training of the personnel and to solve the questions of economy and thriftiness. But there still is much to be done. Thus, upon the initiative of the communists, the training facilities are being improved and help is being provided in building a vehicle driving range. The command and the communists of the unit are making every effort to implement the set plans in strict accord with the decisions of the 26th CPSU Congress.

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AIR FORCES

FLIGHT DISCIPLINE: VARIOUS ASPECTS DISCUSSED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, 1981 pp 8-9

[Article by Hero of the Soviet Union, Honored Military Pilot of the USSR, Col Gen Avn V. Reshetnikov: "A Profession of the Courageous"]

[Text] The Soviet people are sincerely fond of their winged defenders and are proud of them. The aviators have inscribed many glorious pages in the heroic history of our great nation and its Armed Forces. Their remarkable deeds during the years of peaceful construction and their military feats on the fronts when they had to defend the honor and independence of the motherland in mortal engagements with the enemies of socialism for the present and future generations of combat pilots will always serve as a vivid example of loyalty to the cause of the communist party and to military duty and of courage and nobility.

The image of the Soviet pilot is linked to the names of V. Chkalov, M. Gromov, V. Kokkinaki, S. Suprun, A. Serov and thousands of other famous heroes of peacetime and wartime. Undying is the glory of the outstanding combat pilots, thrice Heroes of the Soviet Union A. Pokryshkin and I. Kozhedub. The entire world knows the name of Yuriy Gagarin, the first to make the bold step into space. Soviet pilots have always been in the first ranks of the conquerers of the unknown and have boldly carried out a feat in multiplying the glory of their fatherland. Inherent to them is boundless love for their profession, loyalty to the cause, boldness and decisiveness, a desire to understand the new, a strict and exacting attitude toward their every step in life and service, high awareness, a sense of responsibility, discipline and efficiency. All these qualities taken together comprise the basis of the moral make-up of our aviators, true patriots and internationalists.

As is known, flying is a particular type of human activity. It places rigid demands on the knowledge and skills of the crew members and ground personnel readying the aircraft for the flight. As well as upon the precise observance of all the established rules by them. The journal AVIATSIYA I KOSMONAVTIKA has conducted a major and principled discussion of flight discipline. The authors of the replies to the article "A Shining Halo" have brought out various aspects in the life and professional activities of the aviators. As a whole extensive material has been obtained showing that in aviation there are no major or minor, chief or secondary questions. All that in one way or another involves the readying of the aircraft equipment and the personnel for the flights and ensuring the combat training of the subunits is directly linked to safety and human lives. Here there is no room for indifference and a lack of discipline.

In speaking about flight discipline we feel it is worth recalling that discipline generally is a definite manner of human conduct meeting the standards of morality and law existing in a society and a necessary condition of the normal existence of society and the ordered activity of people. In the army, along with generally required discipline, there also is military discipline which is established by the laws and corresponding regulations. Moreover, the life and specific activities of the aviation collectives are regulated by the guiding documents each point of which has been written on the basis of the experience of many generations of aviators. To ignore them means to willfully create an emergency situation and the threat of aborting a mission.

The aviation instructions precisely and in detail describe what must be done, where, when and how. Even in school the young aviators from their first steps gain the laws of flight service. The task of the VUZ command, the instructors of special disciplines and the flight instructor personnel is to teach the future pilots and navigators to unswervingly carry out the requirements of these documents, the orders and instructions so that each point of them becomes, if it can be so said, part of the flesh and blood of the men while efficiency raised to the highest limits becomes an inner conviction and an aware need.

Many authors of the replies have asserted that violations of military and flight discipline are more frequently made by a person who has a poor knowledge of the established rules or, on the contrary, knows them well but endeavors to do things his way. In actuality there are many examples of this. The following instance comes to mind.

The Military Pilot 2d Class, Capt V. Prudnikov, taxied to the runway. In the process of shifting the engines to the take-off mode, the aircraft moved off position and turned to the left. In this instance, as the instructions demand, the pilot should have immediately reduced power and aborted the take-off. However the pilot felt that during the run he would be able to bring the aircraft back to the straight line. But this was not the case. The aircraft rolled off the concrete onto the ground and only then did Prudnikov abort the flight.

There is no doubt that the officer himself created a potential air accident. Nor was the flight control officer blameless as he should have given the appropriate command and prevented the train of mistakes. Unfortunately, neither person carried out his direct duties, that is, they violated flight discipline. As a result an expensive aircraft was damaged. As they say in such instances, all's well that ends well, but things could have been much worse.

Practice shows that deviations from the established standards and rules begin on the ground and are transferred directly to the air. Any so-called minor violation causes a serious one. It is like a chain reaction. Let me give an example.

Lt V. Alferov flew off into the zone for advanced aerobatics. Having completed the mission, the pilot decided to try flying in the clouds. Having executed several figures he emerged from the clouds and...did not recognize the terrain. Instead of calmly looking around, assessing the situation and doing everything necessary to determine his position, he headed to a seemingly familiar marker. As a result he crossed an adjacent zone where another pilot was flying at the same time. The

instructor promptly spotted the foreign aircraft in the zone and reported this to the control tower. The flight control officer contacted Alferov, ordered him to request a bearing, set the compass and thus head back to the airfield.

How should this be judged? This question, I feel, can be viewed from two viewpoints: that of the commander and that of the subordinate.

The flight leader who trained the pilot and had supervised his readiness for the flight judged the committed error as a result of a lack of discipline. This is correct. But on the other hand what had the leader been thinking in letting a poorly trained pilot fly?

In the preliminary preparations, the lieutenant had not memorized the flight headings to the zone and the return or the rules for regaining orientation and had showed poor knowledge of actions in special instances. The instructor drew attention to this and, having instructed the pilot to study the assignment and the sections of the instructions again, considered his mission completed. He had monitored the preparation of his subordinate for the flight superficially without delving deeply into his knowledge. Thus, several oversights by the instructor are immediately apparent: he had not fully studied his subordinate, he had not demanded that he carry out the given instructions, he had overlooked that strict, principled control is a dependable guarantee for flight safety, and, of course, not having studied the personal qualities of the young officer, was overconfident in him or, more accurately, he had blunted his professional vigilance. As a whole there had been a decline in a sense of responsibility for the air skills and the moral-psychological training of the pilot, that is, the nonfulfillment of his immediate functional duties.

Then how did this instance appear to Alferov? The pilot felt that firm knowledge of the airfield area and the computational data was not essential. Moreover, the flight leader had not checked him as he should. He had not paid attention to the preflight instructions of the flight control officer not to go into the clouds and had decided to enter them being unprepared for instrument flight conditions. Thus, excessive self-confidence, neglect of his preparations and the instructions of superiors and an independent change of an assignment--this is nothing more than a lack of discipline. It was no accident that the young officer was punished for deviating from the flight rules and his instructor was given an appropriate reprimand.

Seemingly this is a simple example. However in it one can trace a chain of closely related factors which if allowed to develop could lead to a flight accident. Here there are no eventualities. Everything is consistent and natural. And the main link in this chain is the commander, the indoctrinator.

The author of the article "A Shining Halo" Col V. Shishkin and the readers who participated in the discussion have drawn attention to the air, instructional and pedagogical training of instructor personnel and to the professional training of the crew commanders of multiseat aircraft. This question has been raised for good reason. For example, the crews of military transports and long-range bombers often carry out autonomous flights. Far from their airfields, the commanders must take independent decisions in accord with the developing situation and bear responsibility for the outcome of the mission and the fate of the crew. It is not hard to

imagine how high must be the personal training of the commander, his competence and circumspection and his ability to clearly assess the developing situation and how well he should know the moral potential of his subordinates so that an instantly taken decision is carried out precisely and without error.

The authority of a commander does not come along with the position but rather is won by painstaking daily labor and by flawless conduct on the ground and in the air. I have long known the squadron commander, Lt Col S. Kovalenko. He is a first-class pilot and an intelligent and courageous officer. He is totally dedicated to his flying profession, he knows his job well, he is constantly deepening his military and special knowledge, he is demanding on himself and is always smart looking. Kovalenko devotes a great deal of attention to the training and indoctrination of the aircraft instructors and commanders. He firmly knows that if need be he can lead his pilots into combat and for this reason should be absolutely confident of the skills and moral-psychological readiness of the crew members. The demanding approach to the job, great demandingness for himself and subordinates, a unity of word and deed, exceptional discipline and efficiency and the desire to further raise combat capability and readiness of his subunit clearly express the vital position of the squadron commander and the communist leader. For high indicators in military and political training and for able indoctrination of his subordinates, Lt Col S. Kovalenko has been awarded the Order "For Service to the Motherland in the USSR Armed Forces" Second and Third Degrees.

In carrying out the tasks of military and political training and in solving the questions of strengthening order and organization, it must not be forgotten that the state of discipline depends upon the spiritual cohesiveness of the men and how the person feels in the collective and whether he recognizes responsibility not only for his own affairs but also for the overall success. High results are achieved where as V. I. Lenin said, "comradely discipline, discipline of the greatest possible respect, the discipline of independence and initiative in combat" have been established.

In the squadron commanded by Lt Col Kovalenko there is strict proper order and the relationships between the servicemen are founded on a professional and principled basis. In no way does this exclude strong military friendship. All the crews are a close team and each specialist firmly knows his established duties and carries them out precisely. The squadron party and Komsomol organizations are good assistants for the command in solving questions of combat training and in organizing the life and leisure of the aviators. They indoctrinate the men in a spirit of strict observance of the requirements of the oath and regulation, they mobilize them to take an active part in the socialist competition under the motto "For High Combat Readiness and Firm Military Order" and help to carry out the responsible tasks confronting the subunit.

The indoctrination of the aviators in high awareness, ideological conviction and organization, conscious discipline and self-discipline and the development of an activist position in life--all of this is a constant task and it must be carried out purposefully, steadily, daily and hourly. At the 26th CPSU Congress, the General Secretary of the CPSU Central Committee, Comrade L. I. Brezhnev, emphasized an important thought for us, the aviators: "Under present-day conditions the importance of discipline, the importance of personal responsibility have greatly increased." It is essential to raise the responsibility of the leaders for the

assigned job and the results of the work, for the unconditional carrying out of the assignments, plans and decisions and for the unswerving observance of state, planning and military discipline.

Completely correct are Lt Col A. Konstantinov, Maj R. Akhmetov and other participants in the discussion when they say that deviations from the established standards of military and flight service start from a small point and are caused by a laxness on the part of the commanders and fully organized control. There is no doubt about it, people must be trusted. Trust is one of the conditions for developing creativity and initiative and is a basis for the moral-psychological mood of a person. But trust in no way excludes but rather on the contrary presupposes strict and objective control. If the commanders do not systematically monitor the work of subordinates and the carrying out of given instructions, the energy of people can be directed where it is not needed. "Trust, but make sure," this golden rule should be at the center of attention of an indoctrinator-commander.

Undoubtedly the microclimate of the family has a substantial influence on the service of each aviator. If mutual understanding and good relations exist between the spouses, in other words, if there are no grounds for conflicts, this has a beneficial effect on the carrying out of service duties by the husbands. S. Vysotskaya and G. Skuridina have touched on this question with good reason. Yes, the wives of aviators are not only the tenders of the hearth, housewives and mothers, but they are also combat friends who share the hardships of military service with their husbands. If, even symbolically, they are considered as part of the aviation crews, then we must not pass over in silence the high responsibility for their conduct in everyday life. They are right in saying that flight discipline is linked to flight safety and it is impossible to be indifferent to this. It is essential to be profoundly aware of the degree of one's influence on strengthening discipline. This will be a weighty contribution to the common cause of raising combat readiness and capability of the aviation subunits.

Practice shows that where the command, the political workers, the party and Komsomol organizations pay unflagging attention to the life of the men and delve deeply into the organization of combat training, where the daily regimen is strictly observed, here there are no violations of military and flight discipline, combat training is carried out at a precise and measured pace and the successes are more noticeable.

The winter training period has ended. The military aviators are confronted with difficult and responsible tasks in the second half of the year. "We will proceed correctly, we will proceed in a Leninist manner," said L. I. Brezhnev, "if, in paying proper due to what we have achieved, we focus attention on the shortcomings which we still have and on the unsolved tasks." This is the essence of the Leninist style of work which each commander and each aviator must master if he values the honor and dignity of the Soviet soldier.

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AIR FORCES

PARTY-POLITICAL WORK IN AVIATION UNITS

MOSCOW AVIATSIYA I KOSMONAVTIKA in Russian No 5, 1981 p 10

[Article by Military Sniper Pilot, Col A. Sleta: "When the Atmosphere is a Professional One"]

[Text] As is known, modern combat equipment can be controlled only by highly skilled persons who have mastered it fully and who deviate not an iota from the requirements of the flying rules and laws. It can be confidently said that the master of combat employment have achieved high air skills not only due to enormous effort but also due to an exacting attitude toward carrying out their party and service duty. Experience shows that only a profound understanding of personal responsibility by each communist makes it possible to avoid flight accidents or potential ones caused by the personnel.

In the party organizations of the aviation unit where the communists V. Kononenko and V. Yudin serve, the questions of the vanguard role of the CPSU members in ensuring flight safety are examined regularly at meetings of the communists and party bureau sessions. The discussions are carried out in a situation of high party principles. The aviators who have deviated from the flight requirements or who have negligently carried out their professional duties must answer for their misdeeds.

The monthly plans for the work of the political section and the party bureaus without fail make provision for measures to ensure flight safety. Moreover, the party organization secretaries in close contact with the political workers plan and organize party political work in the flights considering the specific tasks which are being carried out on the given flight day or night and the personnel training level. The party organizations help the commanders thoroughly and profoundly reach the essence of every potential accident and investigate it carefully. Here is an example.

Having carried out an assignment in a zone, Capt N. Nikiforov came in for an instrument landing although the preflight instructions stated that the approach was to be made under flight-director conditions. Nikiforov allocated his attention incorrectly, he dropped below the glide and drifted to the right. However upon a command from the flight control officer he corrected his mistake and landed the aircraft.

After a detailed analysis the squadron commander concluded that the mistake lay not so much in the pilot's lack of discipline (Nikiforov was an efficient and hard-working officer) as in the method of his preparation for the flight. This was

pointed out to the immediate commander of the pilot. In analyzing what had occurred, the regimental political section and party committee also saw a failing of the subunit party bureau. It had not provided sufficient aid to the command in organizing the preliminary preparations for the flights. The unit activists helped the squadron party bureau correctly allocate the forces of the party aktiv in the next flights. As a result in the squadron there was an improvement in the quality of preparing the pilots to carry out similar exercises.

The primary party organizations of this unit have made it a practice to have a monthly analysis of the activities of the CPSU members and an evaluation of their personal contribution to ensuring trouble-free flying. At each party meeting of the squadrons and the regimental headquarters they hear information from the secretary on the work done by the communists to ensure flight safety.

The achieved successes show the effectiveness of the measures carried out in the unit. The aviators have steadily maintained leadership in the socialist competition during the year of the 26th CPSU Congress. Here there have been no flight accidents caused by the personnel. The CPSU members set an example in preventing potential accidents. Thus, once during flights, Sr Lt Tech Serv I. Golozubov and the party bureau member, Sr Lt Tech Serv Ye. Sova, in preparing an aircraft were able to promptly spot and quickly eliminate a hidden defect.

Was this just chance? No. These officers always carry out their duties in an exemplary manner and in work there are no minor details for them. By their attitude toward the assigned job, Sr Lts Tech Serv Golozubov and Sova set an example for fellow servicemen.

High ideological loyalty and profound understanding of their duty--this is what is characteristic for the communists in this party organization.

The situation is different in those collectives where the communist leaders and party organizations do not pay sufficient attention to effective, daily preventive work against potential air accidents, where they are little concerned with the men and superficially study their moral and professional qualities.

The commander of one of the helicopter crews, Officer V. Isakov, is not new to flying. Considering this he was promoted to solo work. It seemed initially that the trust inspired the aviator. He successfully carried out the most difficult assignments. Suddenly he caused a potential flight accident. What had happened? An analysis showed that the crew commander had broken discipline. And something else was discovered. Previously Isakov had not excelled in the personal example he set.

The given fact reaffirms the notion that the party organizations must provide all-round aid to the commanders in a detailed study of the personal qualities of the aviators. In the collective where communist V. Isakov serves, the party bureau drew the correct conclusion and improved the style of work with the men.

The squadron where Lt Col V. Sviridov is in command has acquired positive experience in indoctrinating service activeness and personal responsibility in the communists and all the personnel. The close and coordinated work of the commander, the political worker V. Altunin and the party bureau secretary, Capt A. Drozdov, has helped

achieve stabler results in the combat training of the aviators and in carrying out the flight training plan without any accidents or potential ones. The squadron does a good deal to indoctrinate high awareness in the pilots, technicians and junior aviation specialists. The communist leaders and the party organization are constantly concerned with raising the political activeness of the aviators and seeing to it that the communists and Komsomol members set a personal example in carrying out their service and party duty. In the subunit there are many young officers and for this reason the leadership and party bureau pay particular attention to instilling a love for the military profession in the young men. The questions of moral indoctrination are closely linked to the flight training tasks. The effective indoctrination has produced good results. All the pilots arriving from the schools passed the exams for third class successfully.

Development does not occur smoothly and evenly for all young aviators. For example, a year ago Lt R. Goncharov arrived in the squadron. Initially he made mistakes in flying. This alerted the command and the party bureau. The squadron commander and the party bureau secretary spoke repeatedly with the young pilot. He was given the necessary help. And the officer improved noticeably, he began to have a great sense of responsibility for his development as a pilot and seriously began to instill in himself firm will, self-control and discipline.

The party organization is a dependable and loyal support for the commander in carrying out the combat training tasks without any flight accidents or potential ones. Experience shows that success comes to those commanders who do not take over for the party organization but rather constantly rely on it and skillfully direct its work. In such collectives, as a rule, there reigns a principled, professional atmosphere and party political work is aimed at raising the personal responsibility of each communist for the strict and precise fulfillment of the documents which ensure safe flying. Practice irrefutably shows that precisely such an approach to the job produces tangible results in improving the quality of the entire training process, in ensuring safe flying and hence in carrying out the demands of the 26th CPSU Congress on strengthening combat readiness and indoctrinating aware and disciplined defenders of the motherland.

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AIR FORCES

MEDICAL RESEARCH ON PILOT STRESS EXAMINED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, 1981 p 17

[Article by Lt Col Med Serv A. Pleshan' and Candidate of Medical Sciences, Lt Col Med Serv E. Kozlovskiy: "The Results Improved"]

[Text] There is a close tie between human activities and nervous-emotional stress. If a pilot experiences high nervous-emotional stress while training on training equipment this shows the insufficient mastery of the flight mission. Hence from the nervous and emotional stress of a pilot in working on a trainer it is possible to judge the level of his flight skills, the degree to which he has mastered one or another element of the flight and, ultimately, his readiness to carry out the planned assignment in the air.

In the process of research using the "physiologist" device, nervous-emotional stress in pilots was determined from the change in the following physiological parameters: pulse rate, breathing rate and the minute volume of pulmonary ventilation. The sensor for the heart contraction rate (HCR) in the form of a clip was put on the ear lobe, while the sensors for respiration rate (RR) and the minute volume of respiration (MVR) were mounted in an KM-32 oxygen mask. During the training the instructor monitored the level of piloting techniques while the physician in each stage of the flight measured the minute values of the HCR, RR and MVR. After the flight the obtained data were decoded and analyzed and a conclusion was drawn on the quality of piloting techniques and the amount of nervous-emotional stress. Additional training was assigned to pilots who showed poor piloting or worked with a high level of stress.

Eleven young pilots participated in the research. Using the method of trainer exercise we were to establish the degree of the nervous-emotional stress and by specific training achieve high and stable results.

Each pilot made ten circular flights in accord with the adopted procedure. The circular flight was hypothetically divided into six stages (modes): climb, first turn, level flight, second turn, landing approach and passing the near beacon.

At each stage the flight control officer (instructor pilot) registered the maximum deviations in speed, altitude, heading, bank, relative bearing of radio station and vertical speed. The physician determined the level of nervous-emotional stress. Piloting techniques using a special procedure were judged not by the instructor but

by the medic. On the basis of the obtained data, a grade was derived using a four-point system (two, three, four and five).

Since all six stages were judged, in a single flight a pilot could collect a maximum of 30 points and a minimum of 12. Over ten flights there would be a maximum of 300 and a minimum of 100 points, respectively. Having divided the total number by the number of grades over the ten flights (60), we obtained average grades for all the recorded parameters. For example, if a pilot had 260 points for piloting techniques over the ten flights, then the average grade equaled $(260:60)$ 4.33 points. As a result, five pilots carried out the flights with an average grade of 4 points and over while the minimum grade for piloting equaled 3.15 points and for the stress level 3.46 points.

On the basis of this the conclusion was drawn that a majority of the pilots had rather high flight training. The physician's conclusion coincided fully with the opinion of the commanders.

In using the total number of points and the average grade, the physician divided the pilots into groups according to their overall achievement. An analogous distribution was made by the unit commander but considering not the trainer drills but rather the actual flight preparation of each pilot. For greater objectivity the medic's data were not announced to the command. It turned out that the flight training grades according to the data of trainer exercises and during real flights virtually coincided. In other words, a high correlation was obtained between the indicators of pilot training using a trainer and during real flight. Such a result provided reason to assume that the designated evaluation procedure will make it possible to predict the activities of a pilot in flight using data of training on a trainer.

However, with further, more detailed analysis of pilot activities on a trainer, somewhat unexpected results were discovered. Thus, one pilot made ten flights with an average grade of 4.08 points for piloting techniques and 4.19 points for nervous-emotional stress. According to all criteria he was judged well prepared and in the assessment of the command was among the first pilots of the group. Seemingly the result was good and the officer did not require additional exercises on the trainer. But an analysis of his piloting techniques in the various modes showed that the stage of "passing the near beacon" was carried out with an average grade of 2.9 points, having received six 2's in ten flights. The results of the others were assessed analogously. It turned out that all the pilots, even the well prepared ones who had an average overall grade of 4 points and higher, performed certain elements of the flight poorly. It was decided to conduct additional exercises on the trainer.

For this individual drills were worked out in which basic attention was devoted to those elements of the flight for which the pilot had showed the poorest results. Beforehand he was acquainted in detail with the results of the previous exercises. The instructor analyzed the errors, he showed their possible causes and outlined ways to eliminate them. Then the pilot made one or two escorted flights and after this began the circular flights using the same procedure as in the first series.

As a result of the training all the pilots noticeably improved piloting quality while nervous-emotional stress declined. The grades rose both as a whole for the flight and for its individual elements.

The research also showed that for achieving the planned level (that is, grades of "good" for both parameters) it took five-seven flights for trained pilots and ten-seventeen for less trained ones.

It can be concluded that the participation of positions in crew training on piloting and multiple-purpose trainers makes it possible to more thoroughly study the psychophysiological features of flight personnel, to improve the quality of training and raise the effective preparation of the pilot to carry out the flight mission. The procedure for assessing piloting and nervous-emotional stress in training on a trainer provides an opportunity to organize individual training for less trained pilots for improving their flight skills.

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AIR FORCES

AIR COMBAT: DEVELOPMENT OF PRINCIPLES DISCUSSED

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[First of a multi-part article published under the heading: "Tactics and Modeling" by Candidate of Military Sciences, Col V. Babich and Lt Col Yu. Kislyakov: "Development of the Principles of Air Combat"]

[Text] The principles of air combat are standards of conduct and basic ideas which guide the pilot in an air engagement with the enemy for the sake of achieving victory over the enemy; the most permanent elements of tactics reflecting the development level of this area of military art. They help to orient oneself in a difficult situation of air combat and instill confidence in the correctness of the decision taken.

The sequence of fighter generations--piston-driven, jet and supersonic--has been accompanied by substantial changes in tactics as well. With the acquiring of experience the methods of conducting combat have been improved and the obsolete procedures have given way to new ones which conform to the increased combat capabilities of the equipment and weapons. However, such principles as aggressiveness (combat activeness), surprise, the skillful combination of maneuver and fire and the constant search for the new in tactics, once established, have survived in tact. In being tested in the flames of major and minor wars they, in essence, have remained fixed. The disregarding of them has inevitably led to failures and to the losses of aircraft and pilots.

In actuality, as analysis shows the basic ideas of air combat which did not wish to age have survived only externally. The traditional form has been constantly replenished by a new content in being influenced by the achievements of military science and equipment as well as by the professional skills of the pilots. Thus, the principles stemming from the objective laws of combat have been enriched, developed and improved.

Let us endeavor to show this from examples of both the distant and not so distant past.

1. Aggressiveness

Aggressiveness, or as it is still called, combat activeness, was established in the very purpose of a fighter, the aircraft's properties for conducting air combat were subordinate to it and it comprised the main distinguishing feature in the pilot's

character. A fighter has no weapons which fire backwards. Its purpose is to attack, that is, rapid movement with heavy firing forward. Even the best defensive move was the turn toward the attacking enemy and not movement away from it. A passive defense has always led to an undesirable outcome.

The activeness of a combat pilot was determined by two qualities: by the desire and by the ability to fight. The decisiveness of the plans was determined by the impossibility of taking the enemy prisoner or forcing it to surrender. In air combat a white flag could not be dropped.

The speed of the aircraft and the power and range of fire comprised the material base of the offensive. An advantage in these components always gave a pilot freedom to choose the maneuver and the direction of the attack. A fighter pilot did not wait for the enemy to move but rather anticipated it in thoughts and actions. A manual on conducting air combat from the times of the Great Patriotic War states: "Seizing the initiative gives one the right to create the necessary situation instead of being subordinate to it. The person who surrenders the initiative merely responds to the attacks and does not hit; for a fighter this is almost the same as defeat as it becomes exceptionally difficult to snatch away victory."

The experience of the famous Soviet aces shows that along with activeness in air combat it is essential to have prudence and planning. Usually the combat plan in the form of a proposed version (sometimes several versions) is worked out on the ground, it is adjusted before taking off or in the air after receiving new data on the enemy and is finally adopted when the fighters have detected the enemy.

In the ground preparations for combat, the subunit commanders, considering the established rules, employed standard maneuvers and tactical procedures for combating the enemy fighters and bombers. Inestimable help was provided by the special periodicals which the units received and which generalized combat experience. The planning combat on the squadron level demanded particular art and skilled labor.

The battle formation of a squadron included the following groups: attack, cover and, in a number of instances, free maneuver. An attack group was assigned the forces capable of determining the outcome of the engagement. Usually a third of the available forces was assigned for a cover. When the enemy fighters were echeloned in altitude, then an upper layer or flight (two-plane element) was organized for increasing the efforts in the most crucial sector. Offensive combat started with the closing in carried out in such a manner that the attack group was higher than the main enemy grouping.

The direction and objectives of the attack were determined by the group commander who was in the battle formation where it was easier to direct his subordinates and monitor their actions. The commanders of the two-plane elements and flights participated in combat at the head of their subunits and led them by personal example. If in the situation which developed an attack group was unable to be the first to attack, the engagement was initiated by the cover fighters without permitting the enemy to seize the initiative. The group leaders were always ready to change roles in the air. A free-maneuvering two-plane element (flight) destroyed enemy fighters which appeared over the battle area and threatened the groups in the lower level. Thus, its tactical missions could be briefly formulated as: support, interdiction and pursuit.

An attack, the decisive stage of offensive combat, was of three types: simultaneous, successive and alternate. A simultaneous attack from one direction was employed against a group which presented a broad target constrained in its ability to maneuver. It was recommended that an attack be made from two directions simultaneously (with the spreading of the aiming points) if the enemy battle formation was extended in depth for subsequent defeat of the enemy piecemeal. A successive attack was made from an acute bearing with a tangible superiority in forces. The crews or pairs of fighters increased the fire in one selected area. An alternate attack was used when the threat of an enemy attack could not be excluded. The commander was the first to close in and open fire while the wingman covered him and attacked the target only after the leader had pulled out of the attack. The same procedure was followed in alternate operations against a target by two-plane elements as part of a flight.

What was known about the tactics of enemy fighters? As was stated in the informational publications, the Messerschmitts tried in every possible way to achieve a surprise attack and for this they assumed initial positions for the attack in the sun and an advantage in altitude. Combat was conducted preferably in the vertical plane with reticence shown to use turns. Close coordination was developed between the crews and here radio was rarely used. The battle formation was divided into holding and attack groups which were separated in altitude. The first attack was sometimes designed not to hit the aircraft but rather to break up the battle formation of our fighters with the subsequent pursuit of the individual planes which fell out of formation. At the same time to a certain degree routine was present in the Nazi tactics and favored procedures were often repeated in a changed situation.

Thus, in planning air combat the subunit commanders, in addition to the set mission (patrolling, escorting bombers, clearing the air space and so forth) had recommendations on the following: the configuration of the battle formations; developed maneuvers for different tactical purpose groups; types of attacks to be used depending upon the position of the enemy in the air; an established organization of control and cooperation; fresh data on the enemy tactics.

It must be stressed that in preparing for battle on the ground it was important to position the squadron's forces in such a manner as to more effectively carry out the specific task and set the procedure for committing the fighters to battle. One or two alternative versions were provided in the event of a change in the situation.

The realisticness of the plans depended completely upon forecasting enemy operations as well as upon the commander's knowledge and experience. The 1943 "Manual on Fighter Aviation Combat Operations" pointed out that group combat demands from a pilot the ability to use all the basic procedures and combinations of them. This made it possible not to wonder or hesitate in choosing the method of action in the most difficult situation. The most successful were considered to be the plans in which the largest number of enemy aircraft could be shot down in the first attack. In this instance the attackers were encouraged trusting the correctness of their plans while the stunned enemy lost its battle formation and the capacity for active resistance.

The preparation of a decision in a mobile, rapidly changing situation is now sometimes called the situation recognition method by which one understands an event which develops in time and space and has definite consequences. To recognize the situation means to look to the future and imagine the enemy's position in the following stage of air combat. In other words, it is essential to think like the enemy and

mentally follow his next move. How this happens can be shown from an example from the experience of the Great Patriotic War.

...The flight of Yaks under Sr Lt Ivanov entered battle. After an unsuccessful attack from a great range, the group of Me-109 succeeded in executing a defensive maneuver and began to climb quickly. "They succeeded in getting away," thought Ivanov, but at the same moment he realized that the enemy would not be slow in benefiting from his tactical and numerical superiority and would attack from out of the sun. The thought flashed through his mind of escaping by a roll and dive. But the pilot immediately rejected this since the Nazis could pursue and catch up with the Yaks. Ivanov decided to attack himself. He imagined the space in which the Messerschmitts executed the maneuver and saw them in his mind's eye. Putting himself in the place of the enemy group, he realized that the enemy would turn to the left as this would make it possible for it to attack the Yaks from above and behind. A bold and very risky countermaneuver could provide a way out of the situation, namely turning into the sun simulating a frontal attack. The Nazis could not imagine that they could be attacked blind and would try to drop off at an angle to the left. This would take 10 or 15 seconds and during this time the position of the Soviet fighters relative to the sun would change and they could see the Messerschmitts.

Everything happened just that way and the group of Me-109 appeared off to the right. Ivanov turned the aircraft and pulled the trigger. The Messerschmitt shuddered from the accurate burst and headed down while the enemy group broke up....

This episode has been taken from the book by Hero of the Soviet Union A. Yakimenko "V Atake--Mech" [A Sword in the Attack]. "Ten seconds of uncertainty and mortal risk during which the bold decision matured were Ivanov's military success and put the rod of the victors in the hands of his flight's pilots," wrote the author. "By their actions they confirmed the rule in war that for fighters in combat an offensive is the best defense."

One of the directives from the commander of the Red Army Air Force pointed out: "Daily consideration and analysis of the stratagems and tricks employed by the enemy, along with consideration and analysis of our own mistakes as well as the elaboration of rational procedures of actions are a primary task. It is essential to abandon any routine and stun the enemy by the diversity of one's tactics, as only in this way is it possible to keep the initiative and force the enemy onto the defensive."

Thus, combat activeness (aggressiveness) is directly linked with creativity and with the ability of the pilot to act correctly in an unusual situation and to take intelligent decisions. There is the well-known flying expression that the commander is the creator of combat. The ability to clearly organize combat was apparent in the activities of our fighters under the most difficult conditions, with the great numerical superiority of the enemy which also did not desire to retreat. Having overcome a momentary hesitation, the group commanders took a risky but timely and the only correct decision. To put it figuratively, the speed of thought outdistanced the speed of flight.

In local wars (according to foreign data) group air engagements have already been conducted by supersonic fighters. Their on-board weapons with increased destructive capability continued to be employed only for the attack. A pilot forced to defend himself thought more about taking the initiative than escaping from combat. The fighters which escorted bombers as before could defend them only by a meeting attack. At the same time, there were substantial changes in many components of aggressiveness, primarily in the organization of the air strikes, in the maneuvering of forces and fire and in the direction of preparing the personnel. The new conditions also had their impact. The organization of offensive operations required an improvement since the spatial scope of combat had increased while the increased speed moved the line for the start of the tack far away from the enemy. It was essential to act energetically even before the establishing of visual or instrument (with the aid of a radar sight) contact with it.

However, prior to the start of the engagement the group commander was no longer able to assess the situation sufficiently and without an analysis of its factors remained unknown which would help to take the correct decision. The duties of assessing the air situation were assumed by the ground control post which was equipped with long-range [early warning] radars. The fighters began to be committed to battle upon command from the ground. But the ground crews of the air forces of the United States and their partners were prevented from fully carrying out this mission by the low-altitude gaps in the radar field, by delayed information from forward posts, by the poor image of the air situation on the screens and plotting boards, and finally, by the insufficient tactical training of the operators.

The group commander in the air received meager information on the enemy and this was not enough to show reasonable activity. The incomplete information sometimes led to a varying interpretation of the situation. The commander saw with his own eyes closer up but better while the operator at the command post on the radar screen saw farther away but more poorly. After the beginning of a group maneuver control from the ground became more complicated as the pilots continue to carry out the commands the effective time of which had already passed. Characteristically a threatening situation developed due to factors which did not depend upon the professional preparedness of the immediate participants in the air combat.

It was no accident, as foreign military reviewers point out, that the organization of fighter control was one of the key problems arising out of the experience of local wars. Breakdowns in command became one of the prime factors which explained aircraft losses in air battles. In the 1970's, overseas there appeared airborne command posts. These were aircraft with on-board surveillance radars capable of detecting airborne targets against the background of the earth and at great distances (in the American Air Force, the E-3A aircraft which were part of the AWACS system). According to information in the foreign press, in four air battles conducted over Lebanon, the Israeli fighters were controlled by the crew of a command post on board an American-produced Hawkeye E-2C aircraft. At the same time, in the opinion of foreign military specialists, the improvement in the control systems in no way reduces the role of training for the fighter group leaders (commanders). They continue to bear all responsibility for the outcome (results) of air combat.

In the American Air Force the capacity of group commanders to skillfully control combat is viewed as a talent, and pilots who show abilities in this area are recommended for promotion. Here it is emphasized that only a few have proven to be skillful tacticians in practice.

The change in weaponry and the increased offensive potential have influenced the battle formations of the fighters (the positioning of forces in the air).

An attack group could be small in size as the powerful and accurate weapons made it possible to concentrate fire in the sector of the attack. In awaiting the result of a feint carried out by a decoy group, it did not rush to achieve the advantage in altitude. The energy level necessary for commitment to battle increased rapidly due to the higher thrust-to-weight ratio of the airplanes which attacked predominantly downwards. Combat procedures at medium ranges became widespread as well as the air "ambush" method using the "blind" zones in the enemy radar field.

Thus, in local wars the principle of aggressiveness, having been supplemented in content, influenced air combat tactics.

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MAINTENANCE PROCEDURES IN AIR REGIMENT DESCRIBED

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[Article by Guards Engr-Lt Col V. Mikhalev: "On the Eve of Flights"]

[Text] The regimental commander's plan for the forthcoming flights introduced the appropriate corrections in the activities of the IAS [aviation engineering service] specialists. Proceeding from the instructions received from the commander, the unit's engineers took a decision to organize a demonstration day for preliminary preparation of aircraft equipment for flights. They planned to hold it in the second squadron. The success of the measure depended largely upon the effectiveness of the leaders and their ability to efficiently use the time allocated for the inspections, the specific checks, the supplying of the aircraft with fuel, fluids, compressed gasses and the conducting of training drills for the IAS specialists in the most difficult technical procedures.

Of course, the documents regulating the activities of the IAS personnel clearly defined the procedure for organizing preliminary preparation of aviation equipment. In strictly following them, it is essential, however, to always remember that one flight shift is not like the next. They differ in the nature of the exercises to be carried out in the air, in the intensity of the flights, the number of aircraft involved in them and the meteorological conditions.

The unit's engineers planned the work precisely in accord with an analysis of the previous flight day and the specific features of the coming one. At a session of the section of the pedagogical council, the regimental IAS leaders and the deputy squadron commanders for the IAS analyzed the mistakes which had been made in the previous preliminary preparation days, they disclosed their causes and analyzed their activities in that period. In the maintenance process reserves were found for increasing the effectiveness of preliminary preparation and for ensuring highly dependable operations of the aircraft systems and assemblies. Concern was also taken to use advanced experience. Thus, in the preCongress competition the best indicators were achieved by the subordinates of Guards Capt Tech Serv A. Kanashevich. The first-class specialist, one of the best instructors and an able pedagogue and indoctrinator, the officer carefully plans his work during the day of preliminary preparations, he rationally positions the men and equipment and clearly defines the sequence for carrying out the planned operations for the executors. He always thoroughly explains to the men how the work will be organized, what are its particular features and to what particular attention must be paid.

It happens that individual chiefs of the flight TECH [maintenance unit] or service groups do not exercise precise control over the actions of the personnel.

Once, in inspecting an aircraft, a mechanic from the technical station discovered a bolt in the wheel of the main landing gear. The aircraft was brought back from the take-off. The delay in the take-off occurred due to the fault of the senior aircraft technician, Guards Lt Tech Serv Ye. Oleynik who had inspected the state of the aircraft negligently.

Where had the bolt come from and how had it gotten into the wheel? It turned out that in bringing the aircraft to one of the zones a part on the tractor had been damaged. Pieces of metal fell on the taxiway. No one made the effort to quickly pick them up. Thus the bolt got into the wheel. And Officer Oleynik not only did not notice the pieces of the towing tractor but also inspected the aircraft poorly. In other words, he had a negligent attitude toward carrying out his service duties.

Or another case. During a flight the pilot was unable to activate the afterburner. The engineers established that Guards Lt Tech Serv A. Ushchapovskiy had forgotten to close the engine oxygen feed valve. Because of this the afterburner would not fire. They decided to close the cap for fueling the oxygen feed system for the propulsion unit only after the crew commander had inspected the fueling and opened the valve. Now after the aircraft has been brought to the servicing position, the aircraft technician opens the fueling cap, puts a red tag on the valve and removes it and closes the cap after the crew has completed inspecting the readiness of the aircraft for take-off.

On a day of preliminary preparations, the IAS personnel must work on several groups of aircraft and the range and list of operations differ rather substantially in accord with the particular features of the coming flights. Of course, a good deal depends upon the precise actions of the duty engineer in the unit, Engr-Capt S. Tauzerman. In compiling the work plan with the deputy squadron commanders for the IAS, he acquaints them with the basic tasks for the day and establishes the aircraft which are to be inspected by the commission of the deputy regimental commander for the IAS. Having reminded them of the essential check on the specifications for the fluids and compressed gases to be used, he issued precise instructions on the routes for special motor transport.

In addition, each engineer of the regiment for his specialty drew up an individual plan. Particular attention was given to organizing quality control over the performance of the most crucial technological procedures on the aircraft as well as to the specific inspections of the aviation equipment.

It must be pointed out that the planning of the preliminary preparations day widely reflected the questions of the competition both between the technicians and mechanics as well as between the flights and groups.

The skillfully compiled planning table for the work of the IAS personnel made it possible for the Engr-Capt S. Tauzerman to effectively and precisely control all the work processes and efficiently use the airfield maintenance equipment.

During the day of medical preparations, the unit duty engineer received the airfield maintenance equipment from the ATO [airfield technical support] dutyman and distributed this between the subunit in accord with the planning table. After this the technical crews of the neighboring squadrons came to one of the aircraft in the second squadron. Here each engineer in his specialty conducted a brief instruction session with the men, he reminded them of the particular features of readying the aviation equipment and weapons as well as the observance of the safety measures and described the method for conducting the specific inspections.

Then the squadron personnel began to conduct the demonstration preliminary preparations. In the course of the work the unit's engineers, Officers V. Busarov, B. Kazovskiy, Yu. Molotok, V. Olesik, V. Chikomazov and others, gave advice and recommendations on how to better carry out the planned assignment, they analyzed mistakes and helped subordinates successfully perform the most difficult tasks. At the end of the demonstration exercises, the engineers held a brief review with the personnel, they pointed to shortcomings and commended the best. After this they began preliminary preparations of the aviation equipment in the subunits.

In each squadron this was carried out by the parallel-successive method: two technical crews worked simultaneously on two aircraft with the subsequent changing over to the other airplanes. The duty engineer constantly knew what was being done at the parking areas and skillfully directed the technical process using a small-sized radio and telephone.

From the weather data it was known that the flights would be carried out under instrument flying conditions. For this reason the engineers devoted serious attention to checking the piloting and navigation gear and the aircraft equipment.

After completing the work, the deputy squadron commanders for the IAS conducted an analysis, they summed up the competition between the specialists, flights and groups and established the best. Soon thereafter the unit duty engineer received a report that the aviation equipment was ready for flying.

At the end of the work day, the duty engineer gave specific tasks for the forthcoming flights to the deputy squadron commanders for the IAS. He defined the placement of the aircraft at the technical station, their fueling and equipping in accord with the planned exercises, he announced the day's schedule for the flight shift and gave instructions on the rules for accepting airfield maintenance equipment. He paid particular attention to the condition and quality of the fuel, the compressed gases and the fueling equipment. And this was no accident. In a previous flight shift, ice crystals had been discovered in the fuel of one of the tank trucks. Naturally the vehicle was taken out of service. On the next day a commission of the deputy regimental commander for the IAS together with the representatives of the fuel and lubricant service carefully inspected all the fuel trucks, the condition of the filter elements and the pressure drop on the filters and they tested the cleanliness of the tanks in which the fuel was delivered to the aircraft and its storage at the fuel and lubricants dump. Under the leadership of Guards Engr-Capt Yu. Molotok, the specialists inspected the fuel sediment from the aircraft tanks making certain that there was no water or other foreign impurities in it.

The aircraft inspections were carried out under the plan of the deputy regimental commander for the IAS.

In preparing for these flights, the regiment's engineers creatively approached the organization of preliminary preparations. They personally carried out a large amount of diverse preventive measures. The preliminary preparations helped not only to ensure reliable operation of the aircraft equipment in the process of the flight shift but were also real schooling in the skillful operation of the aircraft on the ground and in the air.

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FLIGHT IN ELECTRICAL STORM CONDITIONS DISCUSSED

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[Article by Candidate of Geographic Sciences, Engr-Lt Col D. Finogeyev: "Lightning in Nonthunder Clouds"]

[Text] That day the flights were held under bad weather conditions. The area of the airfield was covered by solid cloudiness with the lower edge at an altitude of 1,000 m. A light rain fell intermittently. According to the air weather reconnaissance data, the upper cloud limit did not exceed 3,500 m and at an altitude of a little more than 2,000 m slight ice formation was noticed. The radar weather reconnaissance which was periodically carried out by the regular airfield equipment did not detect any blips in the region of the airfield. An analysis of the synoptic situation and the results of calculations made it possible to assume that during the period of the flights there was no reason to expect dangerous phenomena with the exception of the slight ice formation.

The bomber crew, having carried out an exercise over the range, was returning to the airfield. The aircraft was flying through the clouds at an altitude of 1,500 m. The situation was calm. No blips from the cloudiness appeared on the screen of the flight radar.

In the approach to the airfield, the cloudiness became denser and grew noticeably darker. In the earphones there was a rapidly growing crack. Suddenly a blindingly bright ball flashed over the cockpit canopy from the nose to the tail, thunder rumbled and the bomber shook heavily. The crew, having checked the working order of the navigation instruments and having made certain that the aircraft was controllable, reported on what had occurred to the flight control officer and with his permission came in for a landing.

In inspecting the aircraft on the ground they discovered that the upper portion of the vertical stabilizer had been destroyed, the riveted seams on it were damaged and the radio antenna knocked out. It must be pointed out that the next crew flying on the same route 2 minutes later did not observe any indications of electrical activity.

Cases of aircraft damage by lightning in clouds, chiefly cumulonimbus, that is, thunder clouds, have long been known. It has been prohibited to fly into such clouds or under them. However it is not always possible to do this. The problem is

that during a flight only individual cumulonimbus clouds can be detected visually. It is much harder to determine the presence and boundaries of a cumulonimbus cloud which is part of an atmospheric front when the cloud is concealed by cloudiness of other forms. This explains the lightning damage to aircraft with the accidental entry into cumulonimbus cloudiness. The ground and particularly the aircraft radars have increased the reliability of detecting cumulonimbus clouds and thunder at a distance making it possible for the crew to take the appropriate measures for flight safety. An analysis of cases of aircraft damage by lightning has made it possible to divide these into two groups. In the first are the unintentional entry into cumulonimbus cloudiness and the skirting of it at an unsafe distance. Experience has shown that this happens in the absence of radar control over the meteorological situation or the incorrect determining of distance to the edge of the cumulonimbus cloud.

In skirting thunder clouds it is essential to consider that the blip on the radar screen corresponds to the central part of the cloud and that its edge is several kilometers away from the edge of the blip. It has also been established that a safe distance from the edge of the blip rises with an increase in altitude. Thus, at altitudes below 7 km it is 15 km, at an altitude range of from 7 to 9 km it is 23 km and above 9 km it is 32 km. In flying around a cumulonimbus cloud visually, as is known, a safe interval equal to 10 km has been established.

The other group brings together cases of aircraft being hit by lightning in stratiform clouds under conditions similar to those described at the beginning of the article. Here the indications of thunder and the phenomena accompanying it are missing, including the blips on the radar screens typical for thunder clouds. The aerodynamic situation is also not characteristic for the occurrence of thunder activity. Analysis of these cases has shown that one of the basic reasons for the hitting of aircraft by lightning is their electrification (the acquiring of an electric charge).

During a flight, charges are given off with the striking of the cloud particle (water drops or ice crystal) on the surface of the aircraft. The particle, in bouncing off the aircraft's surface, carries away the charge of one sign while the aircraft acquires the charge of the opposite sign but one equal in value. The amount of the charge collected on the aircraft depends upon the concentration of cloud particles, their phase state and size. Moreover, the amount of the charge is influenced by the design features of the aircraft (the dimensions of its basic parts, the skin material, the type of engines, the parameters of the static electricity dissipators) and the speed of flight.

Simultaneously with the electrification the opposite process is occurring, that is, the flowing off of the electric charge. The aircraft is discharged by the atmosphere's conductivity and the exhaust jet, the loss of the cloud particles from its surface and the corona discharge through the dissipators and pointed parts of the aircraft.

As a result of the interaction of these two processes, a significant electric charge can accumulate on the aircraft's surface in a flight through clouds. However, the electrification of the aircraft alone is not sufficient for the occurrence of a spark electric discharge (lightning). An essential condition is the existence of a cloud electric field of sufficient intensity.

In clouds an electric field is caused by the charges of cloud particles which form as a consequence of the capturing of air ions and in the colliding of the particles. In a majority of instances, the electric charges in the clouds are distributed in such a manner that the upper part of the cloudiness is positively charged and the lower one negatively. In the cumulonimbus clouds, the tension of the electric field reaches very great amounts (up to 400,000 volts per meter) and this causes thunder. In clouds of other forms, the tension of the electric field is not enough for the occurrence of an electric discharge.

At the same time, as a consequence of a certain structural heterogeneity in a non-thunder cloud, the tension of its electric field is also heterogeneous and under certain conditions in a part of the cloud can reach an amount essential for supporting an electric discharge although not enough for its occurrence. The appearance of a charged body in this part of the cloudiness can stimulate an electric discharge. And it, as a rule, passes through this body which acts as the conductor of the electric current. After the discharge, the tension of the electric field in the cloud declines and repeated discharges ordinarily do not occur with the appearance of another charged body in it.

The nature of such heterogeneities in the cloud electric field as yet has not been sufficiently studied. However, in analyzing cases of aircraft damage caused by lightning in nonthunder clouds, the most characteristic meteorological conditions for this phenomenon have been determined.

Most frequently the discharges of cloud electricity into an aircraft in nonthunder clouds are noted in the cloudiness of cold and secondary cold fronts late in the autumn and in the early spring, and in the southern regions in the winter period of the year. The temperature contrast in the zone of these fronts at ground level and at altitude ordinarily does not exceed 4°C . The increase in pressure behind the front averages 1.4 millibars in 3 hours. In a majority of instances, the lightning strikes the aircraft in slight turbulence or in its absence. The air temperature at the altitude of the hit changes within limits from $+5$ to -5°C . Weak blips characteristic for stratiform cloudiness are observed.

In analyzing the meteorological situation in the cold season of the year, for the purposes of ensuring flight safety it is essential to draw attention to the probable appearance of conditions where an aircraft could be struck by lightning in non-thunder clouds and which could become the reason for a flight accident. Sometimes the tension of the cloud electric field grows comparatively slowly. In these instances the crew can take measures to prevent the hitting of the aircraft by lightning. In detecting the indications of high tension in the cloud electric field (static in the radio channels, oscillations in the radio compass needle, the glowing of the tips of the wings and propellers, sparks on the cockpit windows) and a rise in their intensity, the crew should reduce flight speed as much as possible and with permission from the flight control officer change altitude. The change in flight altitude must be done smoothly with slight angles of decline or climb.

Electric discharges in nonthunder clouds also hit helicopters, although significantly less often. The discharge, as a rule, occurs in the rotor blade. Here the blade rivets can melt and sometimes burns all the way through occur with a diameter of several centimeters. Recommendations on preventing the effect of cloud electricity on aircraft in nonthunder clouds can also be employed in the meteorological support of helicopter flights.

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AIR FORCES

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NAVAL FORCES

SOVIET NAVAL TRAINING AND DOMESTIC SERVICES PROBLEMS DISCUSSED

Inadequate Living Facilities

Moscow KRSNAYA ZVEZDA in Russian 3 Oct 80 p 2

[Article: "Dangerous List"]

[Text] The report by Captain 2d Rank A. Zlydnev which was published under this heading on 5 September discussed the fact that the personnel of an auxiliary vessel do not have elementary everyday conveniences and the commander of the ship, Warrant Officer [michman] V. Skorynin, does not display the proper concern for his subordinates and is not distinguished by his exemplary nature himself.

As reported to the editors by Captain 2d Rank I. Shapatkovskiy, the facts indicated in the report actually occurred. The newspaper article was discussed at a conference of the unit's warrant officers. For the systematic consumption of alcoholic beverages and an unconscientious attitude toward his service duties, Warrant Officer V. Skorynin was released to the reserve prior to the expiration of the established period.

The personnel of the auxiliary vessel are now living on a personnel ship in a specially allotted cabin.

Poor Training Follow-Up Report

Moscow KRSNAYA ZVEZDA in Russian 10 Apr 81 p 2

[Article: "Paper Well-Being"]

[Text] A critical report by Captain 2d Rank A. Zlydnev was published under this heading in KRSNAYA ZVEZDA. As the chief of the force political department reported, the facts set forth in it correspond to reality.

For serious shortcomings in combat and political training, by order of the unit commander the subunit commander, Captain I. Gurov, received a strict reprimand. The party commission with the unit political department reprimanded him with an entry in his record card.

For omissions in the organization of political-indoctrinational work with the personnel and for a callous attitude toward the needs and demands of subordinates and members of their families, the deputy subunit commander for political affairs, Senior Lieutenant V. Samsonov, received party punishment—a reprimand with an entry in his record card.

The newspaper's article was discussed at an open party meeting of the subunit. Measures were outlined to eliminate the shortcomings which are present.

The necessity to establish effective monitoring of the course of combat and political training and competition in the subunits was strictly pointed out to the unit command.

Supply Problems in Pacific Fleet PX

Moscow KRASNAYA ZVEZDA in Russian 18 Apr 81 p 2

[Article by Lt Col D. Berezhnoy, chief of Post Exchange, Pacific Fleet: "Decision But No Action"]

[Text] I have before me an album of comments of customers concerning the work of our floating store. This year alone, more than 180 entries appeared in it. Those who are serving on islands and remote posts on the shore of the continent note the conscientious labor of merchandise managers T. Petrunenko and salespersons L. Pozdnyakova and V. Tseluyko.

For example, when Tat'yana Mikhaylovna Petrunenko prepares for a regular trip, one could think that she is setting out for her closest relatives—she knows them all by name as well as the tastes of the people and the amounts and sizes of the things which they need. When such an item appears at the warehouse, she puts it aside for the one who ordered it.

But, unfortunately, this hour does not arrive as quickly as is desirable. The floating store accomplishes only three trips per year. This, as we know, is caused by serious reasons. But then, goods could be delivered to military buyers much more frequently by aerial means. There are both the equipment for this—helicopters, and the instruction to build landing sites in suitable places. But, alas, thus far there are no landing areas. It is believed that the good decision should be implemented more rapidly.

By established tradition, by 1 May our floating store will visit the customers with the first trip this year. It is to be hoped that there will be more such meetings.

Disciplinary Problems Discussed

Moscow KRASNAYA ZVEZDA in Russian 21 Apr 81 p 2

[Article by Capt 2d Rank A. Zlydnev: "Preconception"]

[Text] In characterizing technician-rate setter Warrant Officer [michman] I. Kaynaryanu who wrote a letter to KRASNAYA ZVEZDA, Captain 3d Rank A. Nepokrytov was not stingy with epithets:

"Well, you just look at the explanatory notes," Anatoliy Petrovich got angry.

I read the explanatory notes of Petty Officer First Class N. Gorovoy and Senior Seaman B. Borovskikh. The notes are identical down to the commas. Govoroy explained open-heartedly:

"They ordered me to, and I wrote. Borovskikh copied from me."

I take one more explanatory note. In it it says that Warrant Officer Kaynaryanu forced the seamen to accomplish his duties as rate setter. Then the chief of the shop, Warrant Officer L. Katuntsev, commented:

"Why did he have to force them? As a shop chief, I am also interested in seeing that one of my subordinates could replace the rate setter in case of necessity. For this, I detail people to him for training."

At a party meeting Warrant Officer G. Glushko said:

"In general, nothing would have happened to Kaynaryanu if he had not engaged in chicanery..."

Further, Glushko demanded: "I pose the question of Kaynaryanu's remaining in the party because he spoiled relations in the collective with what he wrote."

I will explain at once: Glushko is on the roster as assistant commander of the floating shop for material and technical support but in practice is in charge of the shore food warehouse. This is one of the facts which Kaynaryanu "let out of the bag."

Bewilderment could be heard in the statement of Warrant Officer V. Nozdrachev:

"I would like to understand what we are discussing--Kaynaryanu's letter or another question. I will not vote for any decision."

As we see, not everything ties together here, not everything is clear. In order to understand these contradictions, it was necessary to speak with many people and to become familiar with various materials. And here is what we could not ignore. Prior to last May, Warrant Officer Kaynaryanu, a communist with 12 years of party membership, had no party punishment. During 14 years of service on a destroyer, and later in the crew of a floating shop, there were no disciplinary claims against him. He was repeatedly elected member of the party bureau and has many rewards for successes in combat and political training and exemplary military discipline.

But beginning with last May, reproaches, rebukes, and punishment suddenly began to pour on the warrant officer.

"What's surprising here?" asks Captain 3d Rank A. Nepokrytov, who is head of the crew of the floating shop. "It is all simple: he earned it and received it."

But is all this so simple? Last May, member of the party bureau and chairman of the people's control post of the floating shop, Warrant Officer Kaynaryanu, together with other patrolmen intended to conduct a check of the storage and consumption of food products. It was planned. And it was here that a signal reached the people's

controllers: all is not well in the food distribution room, some foods in short supply were not reaching the pot. Nothing came of the check--Captain 3d Rank Nepokrytov categorically stifled the intentions of the controllers. True, those same "short items" began to reach the seamen's table.

Warrant Officer Kaynaryanu wrote to KRASNAYA ZVEZDA about the unsuccessful inspection and about facts concerning the violation of authorized discipline, and two weeks later he told about them at a party meeting. The meeting decreed: "To listen to communist Kaynaryanu at a session of the party bureau concerning the work of the people's control." Such a session, alas, did not take place. And passions began to heat up: how about it--Kaynaryanu dared to write. A personal case of communist Kaynaryany was opened and later a decision was made to summon him before a comradely court of honor of warrant officers. Just what was found for this occasion? Well, the fact that the warrant officer intrudes "into an area which was none of his business" and infringes on the authority of some officials, by which he causes harm.

Attention is attracted by the haste with which the warrant officer "was unmasked." He is given punishment at a session of the party bureau. A party meeting took place on the very same day. In haste, the following "detail" was ignored: only 50 percent of the communists voted to punish Kaynaryanu. That is, the decision of the party meeting is incompetent: it is known that a resolution of a party organization concerning the imposing of punishment on a party member or candidate member is adopted by a simple majority of the votes of the party members present at the meeting.

The comradely court of honor was also prepared in haste. It took place only the day after the members of the court received the documents. None of them even talked with the warrant officer ahead of time or delved deeply into the essence of the matter. No explanatory note was taken from Kaynaryanu, as is required. And this is how the fate of the person was decided. Accusations were heard primarily from the mouths of those who were mentioned in his letter. And inasmuch as it was already known what A. Nepokrytov is after, the court decreed petitioning for the release of Warrant Officer I. Kaynaryanu to the reserve ahead of schedule.

And again contradictions. In the court's decree it is written that Warrant Officer Kaynaryanu showed himself to be an undisciplined serviceman. But in his performance rating which was signed by Engineer-Captain Lieutenant A. Kamarinskiy and authenticated by the ship's seal it says that Warrant Officer Kaynaryanu is a disciplined, skillful specialist. In his party testimonial it says: "...Showed himself to be a disciplined and competent warrant officer. He knows his specialty to perfection and loves it. He devotes much attention to training the personnel and assisting shop chiefs, bringing order about on the ship, and overcoming shortcomings. But recently, he has embarked on the path of discussing the orders of commanders...."

Here, this "but," naturally, rivets the attention. The accusation is serious. Just what was specifically in mind? It turns out that Warrant Officer Kaynaryanu wrote to the editors about the violation of the authorized schedule and the statute on the organs of people's control.

It is possible that not everything was irreproachable in the actions of the chairman of the people's control post. But he worked honestly and conscientiously, which is also evidenced by the certificate awarded to him by the higher political organ as one of the best patrolmen.

In short, whatever is taken in this story, it is all shaky. Nepokrytov's desire to get rid of a person who accomplished his public duty of people's controller "very zealously" shows through clearly. His basic and firm position was not to Nepokrytov's liking. Leave one like him in the collective and he will write the newspaper again. For example, about how Anatoliy Petrovich sometimes permits himself to "relax"--to drive 400 versts in a government vehicle in order to gather bilberries for himself with the aid of seamen, or to steam with beer and good snacks from that same food issue room with friends until deep into the night in a comfortable semi-secret bath-house which is officially called a room for the gas fumigation of the personnel. Or about how he illegally wrote out travel documents to Vladivostok and back for an adult daughter. As if that isn't enough....

Watch Officer Training

Moscow KRSNAYA ZVEZDA in Russian 25 Apr 81 p 1

[Article by Sr Lt I. Anfert'yev, Red Banner Northern Fleet: "A Thirst for Victory"]

[Text] The commander of the ship has the longest watches on the cruise. Watch officers are relieved, but the commander remains in the control room. Especially if the situation becomes difficult or if the ship is moving in an area of navigational dangers with which the ocean is rich.

So after the regular relief the place of the watch officer is occupied by Senior Lieutenant M. Gorbov. The refinement of the submarine's location, depth of submersion, and speed which is normal for the given moment is under way. The commander observes in silence and does not hurry to complicate the situation although he usually likes to issue special situations to the watch officers.

If Gorbov were more experienced, the commander would have placed him in a difficult situation on the move: it is very important for a watch officer to be able to join in the work without delay. But the senior lieutenant has served on the ship for only a year and it is necessary, first of all, for him to acquire self-confidence. In commanding the torpedo department, the officer has already achieved much: the subunit is in good repute and is the leader of the competition in accordance with the results of the winter training period.

"The submarine has entered a thermocline," the commander disrupts the measured rhythm of reports. "The sonar technicians have established contact with a group of 'enemy' surface ships."

There it is, the first special situation. It is dangerous to be in a thermocline. "Enemy" sonar technicians are not asleep, either. But the bearings to the target are necessary before taking off to a safe depth.

The commander is waiting: while the watch officer is proceeding correctly, he does not display the initiative necessary in this situation. The commander puts himself in the place of Senior Lieutenant M. Gorbov for an instant. "Correct! To dive headlong is reckless, this Gorbov understood. Well, and what next? And one should work faster, faster...."

"Report additional signs of the classified targets," the watch officer inquires of the sonar technicians.

The special situation has been solved and the first task is accomplished successfully. From the report of the sonar technicians, the main target with aircraft on board has been classified among the "enemy" ships which have been discovered. A very important detail. Senior Lieutenant Gorbov makes the decision to pass clear of the targets at maximum distance. With the assistance of the navigator, he quickly calculates the maneuver, the main condition of which is to remain unnoticed and not to lose the main target.

"The noise of propellers on the portside," the commander offers a new special situation. "Detection range...cable lengths. A submarine is maneuvering."

A sudden "enemy" attack. In this case, the Navy Shipboard Regulations give the watch officer the right to begin evasive action without the commander's permission and with the subsequent report to him of the measures undertaken.

The increased responsibility colors the senior lieutenant's voice with unaccustomed austerity. But the main thing is that he did not become confused and did not make a mistake. The commander of the submarine, nodding his head in a sign of approval, recalls how in the course of a recent tactical lesson Senior Lieutenant Gorbov was interested in what correction should now be applied in considering combat experience. For the capabilities of equipment and weapons have grown immeasurably.

The commander, hardly thinking, then answered:

"The experience of the Soviet submariners of the war years is vast. Gradually, you yourself will learn to take what is most important and valuable from it. But one thing requires no corrections: bravery, decisiveness, and a thirst for victory."

And here is the first duel situation in the practice of this watch officer. Of course, it is extremely conventional and intentionally simplified. But nevertheless, the main thing was disclosed in the young officer: he strives for victory and is able to seize the initiative from the "enemy."

This young officer pleased the commander today. He forced the captain 1st rank to recall his own youth when he mastered the first rudiments of the most difficult science to win just as thirstily. And now the crew which he heads has been awarded the Navy Prize for missile firing and the ship's combat crew of the submarine has been adjudged the best in the Navy.

The commander looked at the watch officer attentively. The latter awaited new special situations.

Patrol Boat Training Discussed

Moscow KRSNAYA ZVEZDA in Russian 28 Apr 81 p 2

[Article by Capt 2d Rank I. Golovlev, staff officer: "Search Depth"]

[Text] Prior to the exercise, I often had the occasion to see the commander of a boat division, Captain 2d Rank N. Khalimon, in action. He prepared for the departure to sea thoroughly. For on the exercise the boat crews were to conduct a meeting engagement with a more strongly armed and better radio-equipped division of ships commanded by Captain 3d Rank M. Grechukhin.

In the headquarters, it was assumed at first that success would accompany namely this division. But Grechukhin committed an error in the heat of battle: he employed jamming unskillfully and gave away the locations of his ships prematurely. Exploiting this, the boat crews launched the strike first and won the battle.

As was learned, on preceding trips to sea the situation was often simplified on some ships and training missions were accomplished without the employment of jamming. This circumstance also disturbed the staff officers. In the final analysis, this was also our error. On the instructions of the staff the possibilities of using jamming were studied on the ships and the effect which their skillful employment provides was shown to the commanders in practice.

The search in this direction provided tangible results. Recently one of the ships of the division commanded by Captain 3d Rank M. Grechukhin accomplished antiaircraft missile firing under jamming conditions and hit the target accurately. And on the last exercise the boat crews, crowning the winter training period, launched a sniper-like strike against the leading target of a detachment of ships which was moving in a screen despite heavy jamming. We will disseminate the valuable experience in every possible way and make the most complete use of it in the summer training period.

In accordance with the requirements of the 26th CPSU Congress concerning improvement of control, we are doing much to increase the effectiveness of the staff officers' labor. In the winter period, in particular, it was namely in the sphere of competition that we found an important reserve for improving the work of the entire control apparatus. Formerly, staff officers and staff posts assumed socialist obligations for the training period and for the entire training year. With such an approach, the effectiveness of competition during exercises was not always felt. A suggestion was generated in the headquarters: the control officers are to assume obligations for each exercise. The corresponding regulation was worked out. We sum up the results on the exercises daily with the placing of a grade on the graph. This made the competition noticeably more active and introduced a spirit of competition which furthered the attainment of a high final result in combat work.

I will refer to the example of a recent tactical exercise. When each staff officer had outlined his obligations a graph appeared at the command post--a unique screen of the competition. The leaders of the competition and those lagging behind were determined already in the first three days. Three "fives" appeared opposite the name of Captain 3d Rank O. Memetov. He worked diligently and with initiative and

enthusiasm, knew the situation clearly, and caught its changes. Memetov rendered great assistance to the commander and chief of staff and made valuable suggestions on the control of ships and boats which were operating at sea. Captain 3d Rank V. Ryabogin and Captain-Lieutenant F. Fedorov appeared to be considerably more inferior against this background. The third day of the exercise ended with an unsatisfactory grade for them.

Publicity of achievements and shortcomings made the competition of the staff officers objective and businesslike. Everything favorable was immediately taken over for use while shortcomings were eliminated. The laggards were pulled up in the atmosphere of competition and the staff began to operate more smoothly.

We have many young commanders of ships. How can they be armed with experience more rapidly? In the competition of the officers special attention is devoted to mutual assistance. Demonstration exercises and firings bring great value. One such firing was accomplished by the boat commanded by Captain-Lieutenant A. Yeranskiy. The commanders of ships looked at the entire process of preparing fire and its execution. Of course, the staff tried to prepare the crew thoroughly for the accomplishment of the exercise and much was also done to make the competition on the ship more active. For Yeranskiy and all the other commanders the demonstration rocket firing became a good school. We conducted demonstration gunnery firing on another boat. There were demonstration lessons on ship damage control.

The experience accumulated in the course of the demonstration exercises and firings has now been generalized and will be actively used in the summer training period.

Practice showed that a cruise provides maximum return when the seamen prepare for it thoroughly at the base. For a poorly trained crew, the cruise unfailingly turns out to be a useless expenditure of effort and time and the dissipation of motor resources. In the winter, we did much to raise the quality of base training. A check of the independent training of commanders of ships and ships subunits was set up. Prior to departure for sea, staff officers work on each ship, help to eliminate shortcomings, set up training and competition, and check the equipment, after which they also give the commander a unique pass to the sea. Therefore, in the winter training period we had no case where a ship returned from the sea without having accomplished the training mission.

In the summer we will practice departures to the sea by staff officers and division commanders even more often. There the coefficient of their work, as practice shows, is higher than on shore. On a cruise, there are more opportunities to teach young commanders and to learn themselves under difficult conditions. And relying on the leading experience of the winter training period, we will try to overcome the shortcomings which, unfortunately, we still have, in the summer period.

Technological Training Described

Moscow KRASNAYA ZVEZDA in Russian 5 May 81 p 2

[Article by Capt 1st Rank N. Remizov: "From a Position of Intensification"]

[Text] "Turn on power!" Officer Candidate N. Usov, shifting his glance from the diagram to the instrument panel, repeats the command aloud and executes it. The instructor, Captain 3d Rank V. Gayevoy, is convinced of the correctness of the officer candidate's actions and continues to observe the course of the equipment's tuning.

The diagram is called a preliminary basis of operation, abbreviated OOD. On it is a sequential list of instructions which, by accomplishing precisely, the officer candidate can operate correctly with the equipment from the first time. Here, in the training subunit, such a procedure is called the systematic theory of instruction although, perhaps, it contains more practice than theory and, more exactly, their close tying together and organic coalescence. The compressed times for training specialists and the striving to give the firmest possible skills in controlling complex equipment stimulates the organization of each lesson in such a way that knowledge of the rules for working on the materiel is formed in the very process of accomplishing practical procedures, in other words, without spending time on preliminary learning of these rules by heart from the manuals or instructions or from the instructor's words.

In the Red Banner Leningrad Naval Base the initiators of the introduction of this procedure, which now is being widely employed already with various corrections, were the officers and warrant officers [praporshchik] of the unit in which the commander of the training company, Major V. Trifoyev, serves. They prepared on large sheets complete and abbreviated diagrams on which they drew in strict sequence the order for the operations on real equipment or on its analog-simulator. The diagrams were hung alongside the equipment. Orienting themselves on the diagram, they "say" the content of each operation loudly and then accomplish it in a practical manner, checking each other for completeness and correctness of the work (as a rule, in pairs). With the strengthening of the skills, by placing a cardboard "with windows" over the complete diagram it is transformed into a diagram of the basic operations alone, that is, into an abbreviated diagram, and then it is completely covered by a curtain. In exactly the same way, the loud "saying" of the operations is then transformed into "quiet" uttering, to oneself, and not from the diagram sheet but from memory, and then at some stage it is stopped altogether.

As experience has shown the procedure which has been presented here briefly is especially effective when first training young specialists.

Major V. Trifoyev, Captain N. Khar'kov, and other instructors continued the methodological experiment. They began to supply the word diagrams with photographs of the instrument panels with the control elements and drawings of individual procedures in working on the equipment, and later they electrified the diagrams. Feedback operates here: signal lights burn, indicating the next operation only after the correct accomplishment of the preceding one. Now, laconic graphic panels have been created here--something like sheets of reference signals which are known from the practice of the teacher-innovator V. Shatalov.

Warrant Officer V. Red'kin and a group of rationalizers were the first on the base to put a new simulator into operation. The simulator is supplemented with a device to input malfunctions as well as with a device which assigns grades in the training mode. By the way, the officer candidate can select the difficulty of the mode himself depending on the level of his knowledge.

The creative search in methodology which is connected with the introduction of the preliminary bases, sheets of reference signals, and contemporary trainer complexes serves the intensification of the training process well. A large detachment of innovators who are engaged in improving the procedure for training specialists is now operating in the training detachments, schools, and other units of the naval base.

The research work of the teacher, Captain 3d Rank V. Gayevoy, is well known in the Red Banner Detachment imeni A. S. Popov. The training room which he set up together with Warrant Officer [michman] B. Dubina and where an excellent training complex and the latest instruments which operate using semiconductors, micromodules, and integrated circuits function makes an impression. The officer and the warrant officer (by the way, he is a master of military affairs who is completing the institute successfully) are joining actively in the technical creativity of the officer candidates. Assembling equipment under the observation of their seniors, the officer candidates get to know a specialty in the unity of theory and practice. A lesson taught before our eyes by officer Gayevoy also took place in this spirit.

Inviting the officer candidates by pairs to accomplish one or another operation on the equipment, let us say, to take a reading of the navigation parameters, the teacher "probed" the officer candidates' knowledge of the equipment's basic data, in which regard he tried to see that they operated in an atmosphere of competition. The officer briefly and clearly compared the quality of the work and tested the results against the obligations which had been assumed in competition. As, for example: "Today Officer Candidate Yevstratov is working more exactly in the pair, but Officer Candidate Koshel'kov is also polishing his style confidently. We note that both are participating in setting up the room more actively than others. Officer Candidates Lutsenko and Chizhov have approximately the same indices for accuracy and speed of actions but a small difference is observed in their knowledge of tactical and technical data. Both have also been permitted to assemble electronic equipment. I hope that the others will also try to win the right to become accustomed to this difficult work somewhat quicker."

Before he became a teacher of special subjects, Captain 3d Rank V. Gayevoy headed a department on a ship and commanded a shore technical subunit. He knows well what the young specialists come up against on the ships, and he does not overlook the chance to stress the specific nature of cruise conditions in operating equipment. In discussing the question of how to combine the use of radio navigation equipment when sailing on the ocean, in a coastal zone, and in straits Captain 3d Rank Gayevoy also called attention to the necessity for knowledge of geography, refined the pronunciation of words and terms, and appropriately recalled the native priorities and the innovations in the technical means for navigation.

Methodological conferences and demonstration and experimental lessons are devoted to the intensification of training in the naval base. The more the teachers search, the more do the officer candidates also "find," and the fewer the complaints from the ships on the quality of specialist training.

The improvement of procedure requires painstaking preparatory work. But it is repaid a hundred-fold. I saw on Capt 3d Rank Gayevoy's diagrams various popular drawings beneath difficult formulas which help to switch on the visual memory and facilitate the understanding of the physical meaning of processes. This was done when thinking out the next lesson in all its scientific as well as graphic specificity. For this purpose, Gayevoy looked for a book on one of the naval operations of the war years ahead of time. He visited those places, saw the traces of the battles, and considered it necessary to tell about this in the course of the lesson, and he also had to look in the book. A good occasion appeared to call on the officer candidates to initiate more widely the competition for the right to be called the followers of the best specialists of the war years. In this way, the paths to the closer unity of instruction and indoctrination are found.

Unfortunately, the capacity of the training hour and the intensification of the training process have not yet become a concern in the foreground everywhere. We recently visited a subunit subordinate to officer A. Krivoguz. On a lesson which was conducted by Warrant Officer Yarovskiy, the training time was used in an obviously unproductive manner. Only four men could do practical work, and the others studied the instructions on the subject of the next lesson independently during this time. Theory was studied in isolation from the development of practical skills. Other groups spent too much time on the search for a suitable place for the lessons. Under the pretext of preparations for an inspection of the training base many officer candidates were diverted from lessons to whitewashing and painting. In the diesel and storage battery classrooms, several lessons were lumped together in general because of this. It is completely obvious that intensification of the training process is based on a genuine discipline of time which excludes any separations of people from combat training.

The necessity to discover new possibilities to raise the effectiveness and quality of all our work follows from the decisions of the 26th CPSU Congress. Naturally, the very latest procedure with the very best equipment may prove to be no more than a tribute to fashion if there is not the proper organization, if you don't feel the attitude of people, if you do not note that boredom has set in from their eyes, and if you do not find that string which should be jingled namely at a given moment.

The entirety of a lesson is also its informational capacity and, simultaneously, political fervor, and the charge of competition which is contained in it, and the maximum consideration and realization of all indoctrinational factors. It is, to express it figuratively, a good, clever play which the teacher should also write and produce in the finest sense of the word, in addition playing the main role.

Today, these are the concerns of Major V. Trifoyev, Captain 3d Rank V. Gayevoy, and other officers of the training subunits where the search in procedure becomes the true romance of their service activity.

Training on Nuclear Missile Submarine

Moscow KRASNAYA ZVEZDA in Russian 6 May 81 p 1

[Article by Capt 1st Rank G. Nikitin, commander of nuclear missile submarine, Red Banner Northern Fleet: "Ocean Training"]

[Text] The submarine reaches the point for submersion. The conning tower hatch is battened down and examination time begins in the life of the crew--the most difficult examination which can exist in days of peace--an examination by the ocean. For me, our regular long cruise, which took place after the crew of the nuclear missile carrier had become the initiator of socialist competition in the Navy, was the eighteenth during my service and the eighth in my post as commander of the ship. It would appear that one could become accustomed to it. But it is just this--the psychological stereotype of habit--which just cannot be permitted. For each long cruise is a new test of the crew with its special features and surprises, not to mention the new combat training missions which must be accomplished.

During long cruises, our crew often had to counter unfavorable circumstances with its will, sharpness, and initiative. In particular, a tradition has arisen in the course of training and competition on the ship--not to wait while a situation for the accomplishment of one or another mission develops in our favor, but to work actively ourselves. One day, in analyzing the various stages of a cruise and the special features in the accomplishment of standard missions under various conditions, we came to the conclusion that the effectiveness of the operations of a nuclear missile carrier in the ocean can be raised. Preliminary calculations needed to be checked by practice. This required new, additional efforts from the seamen and a certain risk. But there are no real victories without risk. Here, it is appropriate to recall the requirements of the 26th Party Congress concerning the necessity to combine initiative and efficiency with the striving for great goals. We were convinced of this in practice: nothing so inspires the seamen and increases their strength like a specific, long-term, bold goal.

Understanding that the experiment was useful not only for the ship, but for the fleet as a whole, we decided to conduct it. The fleet chief of staff approved our action. And on the next cruise, he charged us with checking in a real situation the preliminary results which had been obtained by calculations and drills. The results proved to be successful.

In the winter training period, and primarily in the course of training and competition on an ocean cruise, we achieved a reduction of several percent in the time to bring the nuclear missile carrier to combat readiness. Special credit belongs to the missilemen in this. For the combat readiness of our ship is linked primarily with the preparation of the missiles for launch. Returning from the cruise, we reported to the command with the figures which testify to the growth in the rating qualifications of the seamen and to the difficult miles travelled in the ocean depths. And the crew was able to confirm in practice the fact that behind it stood a new quality of ocean training. We had not succeeded in mooring when we received the order to go to sea again for missile firings. It goes without saying, it was an unexpected special situation. The possibility appeared to prove in fact how true we were to our word.

The target was destroyed with high accuracy. The subordinates of Captain 3d Rank V. Sazhin especially distinguished themselves here.

It is well known that, in the last analysis, the complex nuclear submarine exists for the effective employment of weapons in battle. And in this sense, however impressive and high the intermediate results of our military labor may be, the final result of the crew's numerous efforts is summed up by the missile launching.

At times, a unique contradiction arises here: while some assume that there is no need to pay attention to secondary details—it is more important to launch the missile in the "ten." But others, in devoting much effort and attention to individual elements in preparing the equipment, prove to be unable to rise above details, especially when the question concerns tactics and the employment of the ship's main weapon.

And in this regard, a long cruise is an important and instructive school, for by itself a cruise in the ocean depths constantly requires attentiveness toward any minutia. For at times the insignificant negligence of one person and a small malfunction with a careless attitude toward them may cause serious consequences. At the same time, the crew's constant readiness for the command "Missile attack!" obliges it to remember why round-the-clock watches are stood for long weeks and lessons and drills are conducted, and why socialist competition is actively initiated. In other words, all our work on an ocean cruise is called upon to fuse together firmly in practice the high level of technical equipping of the missile carrier, military skill, and the inflexible morale of the crew.

For such an approach to the matter to become the property of each officer and each communist, it was necessary to conduct much organizational and indoctrinational work. The question of specific tasks in the competition was discussed many times at sessions of the party bureau (secretary Captain 3d Rank Ye. Romanov) and the Komsomol committee which is headed by the energetic and thoughtful young officer, Senior Lieutenant S. Matorin.

We devoted serious attention to the growth in the combat qualifications of the specialists; as a result, the ranks of the masters of military affairs were supplemented by several people. In the competition of the combat reliefs, special stress was placed on the vigilant standing of underway watches. And, perhaps, it is impossible to find the moment during all the time that a ship is at sea when something could catch us unawares. Traditionally, we have stressed the question of ensuring the uninterrupted operation of the equipment—and there was not one serious breakdown on the cruise. But at the same time, we wanted the socialist competition to assist the submariners to rise above current, daily matters and to open up for each seaman the prospect of developing his own moral-political and combat qualities and to create an attitude for the maximum for the crew as a whole.

For in the end, we can accomplish all functional operations, meet the norms, and receive high grades but, nevertheless, not be sufficiently prepared for victory in battle. For in battle, it is not grades but true abilities which cross each other. The title of "excellent ship" does not bring automatic victory if its crew is not at the crest of contemporary tactics coordination and skill, and moral-political and psychological tempering.

It is namely because we succeeded in creating a high combat spirit in the crew with the aid of competition and stimulating the seamen to operate with the complete straining of efforts that the ship coped successfully with an entire series of new and unexpected "special situations" with which, this time too, the ocean was generous.

Naval Infantry Training

Moscow IZVESTIYA in Russian 20 Mar 81 p 3

[Article by G. Gusakov: "Amphibious Landing"]

[Text] The sea is always different here. Now calm, tender, stretching out--you can't take it in with a glance.... Now frightful in its wrath. It clothes itself in white lambskin, raises wave after wave, and throws them on the rocky cliffs with a fury, breaking into a watery spray.

This time, I stood with the signal officers on the shore of a rocky bay and waited. Everything had already been discussed and written in a notebook, and I followed the large seagulls which sleepily, quite close to the shore, soared hardly moving their shell-like wings in the air currents. The clear girlish voices floated from the transistor radio which hung on the shoulder of one of the officers: "How dear is the birch kray to the crimson dawn...." On the last note the receiver crackled with electrical discharges and the gulls suddenly took alarm.

The squall flew in unexpectedly. The air was cut by the blades of the helicopters, the turbines whistled in a strained manner, and the water churned in front of the landing ships which were rushing swiftly over the shoals. Literally in seconds, the gray precipitous shore was dotted with black pea jackets and the ribbons of the peakless caps beat against the wind; throwing up columns of smoke, the armored transporters rolled over the shore parapet. In its first rush, the naval infantry reached the "North's" rear area. A few more minutes, and the seashore became quiet and deserted, as formerly. We met in the barracks when it was already late at night.

"The landing was led by the commander of the 2d Company, A. Bukhin," related the deputy commander of the naval infantry battalion for political affairs, Lieutenant V. Zagornov. "And he successfully accomplished the missions assigned by the command. And here are the heroes of those exercises."

It suddenly became crowded in the office of the political deputy: lads of "grenadier" height, broad-shouldered and smiling, entered. They have been serving for a year and they have the bearing of veteran seamen. Sergey Tsaruk was called up from the Kagal'nitskiy sovkhos of Rostovskaya oblast. Mikhail Rusakov--from the village of Novlyankovka of Vladimirskaaya oblast. Both had a peaceful profession--tractor drivers. In Murmansk, Junior Sergeant Viktor Dmitriyev was a builder. Aleksey Suprun was an electrician technician in Kirovabad, Azerbaijan SSR. All were cited in the commander's orders. They are experts of combat and political training and rated specialists. They are mastering all allied professions. And the naval infantryman has many of them--grenade launcher and machinegunner, driver of an armored personnel carrier and paratrooper, master of hand-to-hand combat. God did not offend any of them with too little strength, and daily physical training

endowed them with dexterity and endurance, while independent solutions of tactical puzzles forged resourcefulness and military sharpness.

"We were moving on an armored personnel carrier," relates Junior Sergeant Viktor Dmitriyev, "and suddenly--an 'enemy' tank. We dove into a small woods and, on the march, left a grenade launcher in it. A tank was behind us, and the mark was already on it--'destroyed.' Then we captured 'saboteurs.'"

"This was no game," Seaman Mikhail Rusakov answers his opponents as if continuing an old quarrel. "Although, of course, it could not appear to be anything different outwardly. But our 'enemy' had equal forces and capabilities. On exercises, each tries to check his capabilities. I compare myself with what I was formerly, a civilian--I became quite a different person. And you could see what dashing lads we are. We are confident in ourselves and in our comrades. It cannot be otherwise: Tsezar' Kunikov was been assigned to our barracks...."

When I walked toward the political deputy, I saw: a precisely made bed stands by itself in the first bunk room of the barracks. On the night table--a bouquet of fresh flowers, at the head of the bed--a bronze bust of Tsezar' Kunikov. On the wall--a description of the exploit by the commander of the landing force, the Ukase of the Presidium of the USSR Supreme Soviet awarding him the title of Hero of the Soviet Union, and the order of the Soviet Minister of Defense assigning him forever on the roster of the troop unit. And the story by Leonid Il'ich Brezhnev from the book "Malaya Zemlya".... And in front of the unit headquarters surrounded by silvery firs stand busts of famous naval infantrymen--V. Botylev and Ts. Kunikov, G. Petrova and N. Belyakov, P. Ship and N. Fil'chenkov. The exploits of these people are well known to every soldier.

Nikolay Fil'chenkov and his comrades are known like a banner among the naval infantrymen. Near the village of Duvankaya on 7 November 1941, five Red Navy men led by the political instructor Nikolay Fil'chenkov accepted an uneven battle. They moved out on seven armored vehicles armed only with grenades and Molotov cocktails. Three tanks broke into flames and the remainder crept away behind a hill. After several hours 15 fascist tanks rushed toward the brave men. They could not be permitted to pass--Sevastopol' was to the rear! Nikolay Fil'chenkov collected the remaining grenades and rose up. They understood him without words. They said goodbye to one another. The political instructor marched out to meet the enemy--the ground quivered. Right behind him his comrades threw themselves beneath the fascist tanks.

The bronze busts of the heroes stand at the subunit headquarters. Shining alongside is a ship's bell which has been polished to a golden shine: "general quarters--frequent strikes for three minutes." It seems that if you ring it everyone will fall into formation--the living and the dead.

...We dropped in on the dashing scouts. Simple, affable lads. In contrast with the other subunits in the bunk room, as the barracks are called here, there is a color television set rather than a black and white one.

"The commander ordered issuing it to the scouts for the excellent accomplishment of a mission," says Major V. Polosin. "Of course, you ask about our capabilities. We are always asked about them. We can remove a sentry without noise and can disarm

any athlete in hand-to-hand combat using procedures of unarmed combat. The lads engage in physical training three or four hours a day. Specialists from the Lenin-grad Institute of Physical Culture arrived recently. They said: "they are ready to take any of our scouts without examinations. So that the wartime saying, 'Two seamen--a platoon, three seamen--a company,' is fully applicable to our subunit."

On a recent trip to Sevastopol' I had the occasion to meet with the director of the museum society, P. Rogachev. In 1941, he joined the fleet in accordance with a Kom-somol recruitment, at that time still peaceful. The war found him in a training detachment.

"All those who want to go to the front--two steps forward!" commanded a chief petty officer at one of the detachment formations. And all those standing in the formation moved forward.

In a day, a separate naval infantry battalion was formed and was thrown into the gap in Duvankaya where the seamen of political instructor N. Fil'chenkov fought and died heroically. The battalion dug in and stood to the death until the arrival of units of the Maritime Army. Rogachev was seriously wounded in those battles and he was evacuated to the Caucasus under fire and bombings. Later, he participated in the landing on Malaya Zemlya and in the Kerch landing operation and he spent the entire war in the naval infantry. In what the enemies called "black death," and if they saw the people in black pea jackets and peakless caps who rose up to their full height, they ran as long as their legs would carry them.

"Evidently, the first landing party was the glorious detachment of Prince Oleg," says Petr Mikhaylovich laughing as he conducted me through the halls of one of the museums, "which nailed its shield to the gates of Tsar'grad more than 1000 years ago. The taking of Corfu and Azov, the first defense of Sevastopol', and in Soviet time--revolution, the Civil War, the Great Patriotic War--a continuous chronicle of the exploit of seamen who left their ships for a time as difficult circumstances willed."

The traditions of the grandfathers and fathers live in the glorious deeds of the naval infantrymen. From the first days of their military service, these lads learn to operate with equal success at sea and on land. And they will give a crushing rebuff to anyone who dares to encroach on the sacred borders, "on the birch kray and crimson dawn" which, as is sung in the song, are extremely dear to each Soviet person.

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MILITARY SCHOOLS AND ACADEMIES

AVIATION ENGINEERING SCHOOL: ACTIVITIES DESCRIBED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, 1981 p 31

[Article by Hero of the Soviet Union, Candidate of Historical Sciences, Docent, Maj Gen Avn A. Karpov: "In the Spirit of the Times"]

[Text] For the Soviet people the 26th CPSU Congress has become an event of major political importance as it has outlined new horizons in communist construction. In carrying out the decisions of the party forum, the faculty of the Order of the Red Star Irkutsk Higher Air Force Engineering School imeni 50-Letiye VLKSM [Komsomol] is achieving new successes in the training of highly skilled engineer personnel.

Over the 50-year period of its existence (it was founded in 1931) the school has trained thousands of Air Force specialists. The aviation mechanics, technicians and engineers made a major contribution to strengthening the nation's defense capability in the prewar years. The graduates of the Irkutsk School carried out military feats on the fronts of the Great Patriotic War. During days of great hardship, over 200 mechanics from the accelerated course participated in the fierce battles defending the capital of our motherland. During the period of the Battle of Stalingrad, two officer candidate battalions headed by their commanders courageously defended the city on the Volga. For the valor shown and for total dedication to the socialist fatherland they all were awarded orders and medals.

Eleven graduates of the school became Heroes of the Soviet Union. In particular, Maj A. Rubtsov fought courageously and skillfully against the enemy. In 1942, in 2 months he made 60 combat sorties. The courageous pilot destroyed industrial and military objectives in Berlin and Budapest, Bucharest and Danzig, Warsaw and Koenigsberg. The school graduate S. Markovtsev (now Maj Gen Avn (Res)), having retrained as a pilot, flew a ground attack plane and commanded an aviation regiment.

During the war years the graduates of our school worked as technicians, they held engineer and command positions, they led repair and reconstruction enterprises and rear subunits. The museum of military glory keeps many relics of their military valor. We indoctrinate the officer candidates using the vivid examples of courage and valor.

During the postwar years the operation of jet aircraft was quickly mastered and new training facilities were set up. Judging from the responses from the units, our graduates successfully handle their duties. For example, Engr-Lts V. Tarasenko, A. Proskuryakov, N. Volkov and others in a short period of time retrained for new

equipment and now operate it confidently. They take an active part in rationalization work and the social life of the subunits and units.

Since 1975, the school has begun to train aviation engineers. During this period the classrooms and laboratories, the trainers and production areas have been completely reequipped. Working stands and models have been prepared equipped with electronic and automatic devices. All of this helps the officer candidates study the aviation equipment.

The best educators of the school, Engr-Lt Cols L. Yelsukov and N. Vashchenko, Engr-Maj A. Lavrov, Maj N. Semetskiy and many others, skillfully instill in the future engineers a love for their profession and involve them in active scientific work. For example, we have conducted research of great practical importance on the operation of modern aviation equipment. The school has submitted materials to the all-Union competitions of student work. In 1980, our officers participated in the NTIM-80 [Scientific-Technical Youth Creativity] Exhibit. A group of specialists headed by Engr-Lt Col M. Savintsev was awarded a bronze medal and a diploma for working out an original exhibit. Engr-Lt I. Yegorov was presented a diploma of the USSR Ministry of Higher and Specialized Secondary Education for the best scientific research.

At present on the chairs there are 22 circles of the military scientific society at work. The future aviation specialists learn to work as laboratory researchers and technical researchers and in the senior years as engineer researchers. We involve the officer candidates also in scientific-technical creativity. Over the last 5 years alone some 925 rationalization proposals have been submitted to the school and introduced.

Year by year the ties of the VUZ with the Air Force units have grown stronger and the practical focus of instruction has increased. In working for a comprehensive approach to training and indoctrination, the faculty endeavors to unite scientific, academic and indoctrinational work into a single whole. During tours of duty in the units, the instructors study advanced experience in maintaining modern equipment and in training and indoctrinating the IAS [aviation engineering service] personnel. This helps to conduct the exercises with greater effectiveness.

For successes achieved in the training and indoctrination of aviation personnel, the Irkutsk Higher Air Force Engineering School in 1967 was awarded the Commemorative Banner of the CPSU Central Committee, the Presidium of the USSR Supreme Soviet and the USSR Council of Ministers and in 1972, the Jubilee Honorary Insignia established in honor of the 50th anniversary of the formation of the USSR. The Order of the Red Star shines proudly on its banner. By an order of the USSR minister of defense of 17 October 1968, the school was awarded the title "imeni 50-Letiye VLKSM" [imeni the 50th Anniversary of the Komsomol].

On the eve of the 26th CPSU Congress, the Order of the Red Star Irkutsk Higher Air Force Engineering School imeni 50-Letiye VLKSM proudly reported that it had fulfilled the socialist obligations assumed in honor of the high party forum. The personnel is fully determined in the future to add to the achieved successes and to see to it that the Air Force line units receive ideologically convinced and totally loyal aviation engineers.

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MILITARY SCHOOLS AND ACADEMIES

AVIATION SCHOOL: ADVICE FOR TAKING EXAMS

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, 1981 pp 32-33

[Article by Lt Col V. Kurochkin: "If the Exam Were Tomorrow"]

[Text] In the process of instruction, the officer candidates in flight schools must take numerous various tests and exams on the ground and in the air. They prepare carefully and tenaciously for them, they attend consultation sessions, they study independently and undergo training. Nevertheless, as practice shows, not all the young aviators, even in the graduating class, successfully pass the exams although they possess both the knowledge and skills. In analyzing the results of the tests and exams for certain types of special training, the instructors of our Saratov Higher Air Force Pilots School have concluded that this happens because the officer candidates have an inaccurate notion of how to prepare for the exam, what they should concentrate on in preparing an answer, how to organize the answer itself and behave during a description of the question.

A testing of professional skills in the air is one of the most complicated and crucial. In this instance the examiner can test all elements of piloting techniques, circumspection, the skills of operating the aviation equipment, actions in special instances and, if need be, provide the officer candidate with help. The main task of the inspector is to assess objectively and thoroughly the flight preparedness of the future combat pilot and his moral-psychological tempering. On the basis of the data obtained, the flight instructional level of the instructor teaching the group is also judged. Consequently, the grade received by an officer candidate is simultaneously a grade for the mentor and other educators in the squadron involved in his instruction and indoctrination. This is quite natural for the quality of a student's skills is the end result of the pedagogue's labor.

Instructor pilots are well aware that they must not only teach the officer candidate to fly but also give him good moral and psychological tempering. And here far from the last role is played by the moral preparation for a flight with an instructor. An experienced instructor explains to his students that the most experienced pilots are assigned for giving an exam in the air and for this reason it makes no sense to try to overwhelm them. All the elements must be performed as in a usual solo or escorted flight with an instructor. Frequently they give the bit of advice: "Don't try to do better than you have learned." That is, one should not think up something new and particularly something not provided by the assignment.

Excitement before an examination is natural. But excessive excitement causing tension or inhibition must be suppressed in every possible way. Pedagogues help the officer candidate handle this. However an instruction session before an inspection flight is a painstaking matter requiring patience, restraint and tact and the ability to win the complete trust of the trainees. And here the most unexpected device can play a crucial role.

One must particularly say that an exam is a testing of not only the strength and depth of the knowledge obtained but also of general military culture, that is, how the officer candidate is dressed, his haircut, how he responds to the asked questions, what the condition is of his flight preparation notebook and flight log and so forth. For this reason the exam starts not with the receiving of an assignment but rather with the arrival of the member of the examination commission in the flight group. An experienced inspector watches how the examinee carries out the preflight inspection of the aircraft and starts the engine.

For each inspection it is essential to prepare internally for the flight, to clarify the ground and air situation and the weather conditions and in accord with the actually existing situation think through the actions by stages. First of all, take a look around before starting the engine, check the cockpit and then establish contact with the flight control officer. The flight must be carried out without thinking that the inspector is carefully watching all the actions. Certainly an instructor pilot does the same thing in each flight. Calmness and confidence in oneself help one to see the entire situation in the flight, to accurately carry out the ground commands and constantly monitor one's actions and the helicopter's position in space. When the inspector makes the situation more complex, it is essential to act precisely and definitely, without hurry and nervousness. The decision taken must be carried out to the end. Then the flight carried out as the instructor taught will be given a high grade.

Each young aviator should know that although his professional preparedness will be checked during all his flight activities, he himself should be the strictest judge. For one of the indicators of high flying skills is the ability to independently determine one's own mistake, to find the cause of it and promptly eliminate it.

Smartness, a neat appearance and a precise report create an impression with the examiners with the culture, education and discipline of the examinee. In order to reinforce the good impression created, it is essential to demonstrate a depth and strength of knowledge acquired in years of training.

Having received the examination card, it is best to prepare in the order of the sequence or complexity of the questions. It is wise to write out the answers and if there is no time for this, then to draw up a precise plan. One must not lose one's head in a critical situation. In the exams they ask what has been gone through in the program. For this reason if one's knowledge is reduced to a certain system and comparative characteristics are given relying on logical thinking, then one can count on a positive grade even for that material which at one time was not given sufficient attention.

In answering it is important to use the classroom blackboard. Sometimes officer candidates who have prepared for an answer sit waiting to be called on and completely

forget about preparing the classroom blackboard. Later, in the process of answering, they try to draw diagrams and figures on it but are unable.

In answering it is essential to stand straight and not to turn one's back on the members of the commission; when it is necessary to give explanations of the drawings and diagrams on the blackboard, stand half-facing the examiners.

One must not talk about what does not relate to the given question. Where this is necessary, it is essential to give examples from the experience of the Great Patriotic War. They make the answer more meaningful. The entire answer should be permeated with conviction in the rightness of our cause and the qualitative superiority of our equipment as well as by examples of heroism and steadfastness by our soldiers and officers.

One must not hurry in answering additional questions. When necessary one should ask time to prepare.

It may happen that the commission members do not quite correctly understand the answer due to its imprecise exposition. In this instance one must not become excited. If one is firmly convinced of one's correctness, then it must be shown and one must reasonably defend one's viewpoint based upon a profound knowledge of one or another discipline.

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